BODY BUILDERS INSTRUCTIONS

The Incomplete Vehicle Document (IVD) is supplied with each incomplete vehicle, and provides information that should be used by intermediate and final stage manufacturers in determining conformity to applicable Federal Motor Vehicle Safety Standards (FMVSS). The IVD also includes information which must be followed in order to ensure that Environmental Protection Agency (EPA) and California emissions certification requirements and NHTSA Fuel Regulations are met.

This Body Builders Book contains information that may be used in addition to the IVD for any manufacturer making alterations to a complete/incomplete vehicle. No alteration should be made to the incomplete vehicle which either directly or indirectly results in any component, assembly or system being in nonconformance with any applicable Federal Motor Vehicle Safety Standard or Emission Regulation. Intermediate and final stage manufacturers should be familiar with all Federal Motor Vehicle Safety Standards and Emission Regulations and aware of their specific responsibilities as manufacturers.

For further assistance contact Upfitter Integration at: 1 (800) 875-4742

Section 0 – General Instructions

Check for proper clearance between body members and chassis components which may in any way affect the reliability and performance of the vehicle by developing abrasion and wear points from moving parts or degradation from extreme environment or thermal exposure or may increase interior noise.

Check headlamp aim and all vehicle illumination systems for proper operation when the vehicle has been completed. Re-aim headlamps when necessary. Check for proper operation of windshield washer, wipers and defroster system.

Extreme care must be taken when working on vehicles equipped with Engine Control Module (ECM), Powertrain Control Module (PCM), Transmission Control Module (TCM), Vehicle Control Module (VCM) or any electronic unit associated with an inflatable restraint system. (See Owner's Manual).

If arc-welding is employed on the chassis, precautions must be taken to protect all vehicle components, especially brake and fuel lines, fuel tank assembly, electrical wiring and ECM/PCM/TCM or VCM. To avoid electronic component damage, disconnect battery (batteries); disconnect the negative cable first, followed by the positive. To reconnect cables; connect the positive first, then the negative.

When welding components to the frame assembly, remove the wax coating in the area of the weld in order to obtain secure welds. After completion of the weld, a compatible corrosion protection should be applied to the affected weld areas.

All labels on the vehicle (any message applied to the vehicle or vehicle component that informs, instructs, or warns) must appear on the completed vehicle so the user can read them easily and without obstruction.

Those installing aftermarket systems should provide information as to where and how to obtain service and replacement parts.

When installing a Power Take-Off (PTO) with hydraulic lines, the following care should be exercised:

- Route and secure all hydraulic lines so that they are not in close proximity to any parts of the exhaust system. Keep all fittings and connections away from the exhaust system. Make sure connections and fittings cannot leak on the exhaust system.
- Exhaust system heat can damage and degrade hydraulic lines and components. Oils and hydraulic fluid coming in contact with a hot exhaust system could result in a fire.

Section 1 – Body

Accessory items such as refrigerator, hot water heater, furnace, etc., which operate on liquid propane gas should be located and protected to prevent exposure to any flame.

Body structures, interior and accessory arrangements must be designed into the vehicle to provide for proper load distribution on both axles and not to exceed any gross axle weight ratings. Lateral load equalization must also be maintained. The resultant Center of Gravity of the unladen vehicle must be within the limits tabulated in the FMVSS 105 section of the Incomplete Vehicle Document.

Body insulation provided by General Motors should not be removed. This includes any thermal or underbody heat shields. This insulation is provided to protect the vehicle body and occupants from excessive heat and/or provide noise attenuation. Any replacement material internal to the occupant compartment must be certified for FMVSS 302 Flammability of Interior Materials. Areas of specific concern, but not limited to are:

- Underbody exhaust, muffler and tailpipe shields and insulators.
- Rear load floor interior insulation.
- Front floor interior insulation.
- Dash mat insulation.
- Engine cowl insulation - interior and exterior.
- Engine cover insulation.

Conversions

A minimum of 10° departure angle should be maintained if frame and/or body is extended.

If body builder installs seating other than that supplied with vehicle, it is the body builder's responsibility to ensure that the seating and restraint systems comply with FMVSS requirements. The restraint systems supplied with the vehicle were designed to accommodate the seating reference points and seat travel of the original equipment seats only.

Air Conditioning

For additional information refer to ***Engine - Section 6.***

NOTE: Air conditioning systems using R-134A refrigerant are equipped with metric fittings to prevent interchange with R-12 refrigerant components. Do not interchange R-134A components, refrigerant oil or service equipment with R-12 components, refrigerant oil or service equipment.

Rear Air Conditioning

This unit may be equipped with A/C quick-connect fittings (Option YF7) on the liquid tube (high pressure) and the suction (low pressure) return tube. These fittings are designed to accept matching Aeroquip connecting fittings attached to pre-charged lines. This allows a one time only connection to the O.E.M. charged A/C system without having to discharge, evacuate and recharge for the connection of a rear A/C system.

A modification to the A/C system which causes the A/C plumbing lines to increase in length (such as the addition of a rear after-market evaporator and blower assembly) will necessitate the following changes:

- Lubrication – PAG refrigerant oil must be added to rear system to provide lubrication for compressor. Refer to Service Manual for specifications.
- Refrigerant – Add R-134A refrigerant to system based on sizing of new tubes, hoses and evaporator. Contact your A/C supplier for recommended charge.
- Label – Revise/modify GM charge label (located on top of front evaporator or A/C bottle) from factory recommended charge for a front system only to body builder's new recommended dual system per SAE J639. This is important for servicing the A/C system so that the technician knows the correct amount to add to the modified system.

Section 2 – Frame

Hole drilling, welding, modifications, or alterations to the frame assembly are the responsibility of persons performing these operations. These same individuals assume complete responsibility for frame assembly reliability, performance after alterations and compliance to applicable FMVSS requirements.

The following procedures and specific precautionary instructions are recommended for proper installation of special bodies and/or equipment on GM frames. Failure to follow these recommendations could result in serious damage to the basic vehicle.

Flanges

Do not drill holes in frame flanges.

Holes

Holes to mount brackets, supports, and out-riggers must be drilled in the vertical side rail web with the following restrictions:

- Material between edge of hole and inside of upper or lower flange must not be less than 37 mm (1.50 in.) for low carbon steel (36,000 PSI yield).
- The minimum edge distance between any two (2) holes must be larger than twice the diameter of the larger hole.
- No holes should exceed 20 mm (0.75 in.) in diameter.
- All holes should be drilled in the frame using appropriate drilling practice and safety precautions.

Welding

CAUTION: Fuel tank and fuel lines must be drained and all vapors purged to ensure non-combustible mixture before any welding, brazing or soldering.

When welding low carbon steel side rails, crossmembers and brackets (32,000 or 36,000 PSI yield strength), emphasis is placed upon weld application techniques to avoid stress risers that may adversely affect frame operating stresses.

When welding is performed anywhere on the vehicle, precautionary measures should be taken to prevent damage to electrical system wiring or components. Prior to any welding, parts or components which could be damaged by excessive temperatures must be removed or adequately shielded; the battery cables should be disconnected at the battery. Also prior to welding, the area to be welded and surrounding area must be cleaned of all frame protective coating. After welding, when parts are cool, carefully inspect wiring and electrical components for shorts or other damage which could draw excessive currents and possibly cause an electrical system short when the battery is reconnected. Apply protective coating to areas where coating was removed.

Alterations

If the wheelbase is modified the alterer must take responsibility for compliance with affected MVSS and for warranty on items such as driveshafts, universal joints, center bearings and rear transmission tailshaft, transfer case and transmission case fractures, output shaft bushings, bearings, brakes, fuel systems and any other related component failures. Additionally, the customer must be alerted in the modifier's owners manual that parts for the reworked area are not available through the General Motors service parts system.

Shear Plate Attachments

Attachments of shear plates should be accomplished by using existing manufacturing holes already available in the frame side rails. Manufacturing holes, normally 16 mm in diameter, are consistently placed along the frame side member in the center of the web on each frame.

When additional holes are required for shear plate attachment, they should be no larger than 19 mm (0.75 in.) in diameter. Holes are to be drilled no closer than 63.5 mm (2.5 in.) apart. For holes drilled forward of the rear axle, centers are to be no closer than 63.5 mm (2.5 in.) from the top or bottom flanges and no closer than 89 mm (3.5 in.) from any suspension attachments. For frame holes drilled rearward of the rear axle, hole centers are to be no closer than 51 mm (2.0 in.) from the top or bottom flange and no closer than 89 mm (3.5 in.) from suspension attachments.

No additional holes or notching of either top or bottom frame flanges is allowed.

Section 3 – Front Suspension

Since there is a large variation in completed vehicle front weight due to differences in body weight and equipment, the front suspension alignment must be checked and reset if necessary after the vehicle is completed. Caster and camber should be set with reference to the "A" dimensions. On C3500 HD trucks with I-beams, camber and caster is designed into the axle/suspension and cannot be adjusted.

See Truck Service Manual for complete alignment procedure, specifications and measurement of the "A" dimension under "Diagnosis and Front Alignment" section.

C/K Models are designed such that camber and caster do not need adjustment unless severe road impact or accident deformation occurs. Toe should be reset after the vehicle is completed and while at normal operating load with trim height as specified (K-Model).

The following statement applies to C3500 HD Models with I-Beam Front Axle.

The front crossmember steering gear attachment is a weldment. Under no conditions may the flanges be cut or notched out in any manner. Any alteration would severely affect steering attachment capabilities.

Section 4 – Rear Suspension

Clearance to body should be provided for the suspension, axle, driveshaft and tires under the following conditions: (1) Axle in full jounce against the metal-to-metal stop, (2) Axle at 4.5° roll with one side of axle in full jounce at the metal to metal stop and (3) Axle at design position. Allowance for the tire chain clearance shown on a maximum grown tire must allow for 42.2 mm (1.66 in.) clearance to the sides of the tire and 63.5 mm (2.5 in.) to the top of the tire. Be sure sufficient clearance is provided for suspension, axle and tire and wheel in full vertical travel (up and down).

NOTE: Notification to the consumer may be required in certain states if tire chains cannot be used.

Pipes, wiring, conduits and any other related components must not be placed where they cross the path of motion of the rear axle, driveshaft, axle brake pipes, hoses, spring or tires. Such crossing could result in rupture, wear-through, or separation due to normal axle motion.

See chassis data information for additional clearances and for assistance in calculating trim heights.

NOTE: Concerns regarding the addition of leafs or modifying the Rear Suspension on the C 3500 HD Models, refer to ***Brakes - Section 5*** for additional information.

Section 5 – Brakes

See Truck Service Manual for brake specifications.

Due to the critical nature of brake systems, anyone making modifications or alterations must assume complete responsibility for system reliability, performance and certification to FMVSS 105 or FMVSS 121.

It is mandatory that no change be made to the brake main cylinder location, brake pedal push rod length or pedal position.

Ensure that hydraulic brake system is free of air and hydraulic leaks. Bleed brakes if required, following procedures as outlined in truck chassis service manual. Ensure that vacuum booster system or hydroboost system is functional and free of leaks.

Check master cylinder fluid level and fill as necessary. (Refer to Owner's Manual)

Check power steering fluid level for models equipped with hydroboost brake. (Refer to Owner's Manual)

Added floor covering or carpeting must not restrict service or parking brake pedal travel from released position to full pedal travel.

No body part or chassis-mounted component may be located within 2.0 in. of brake hose routing in all wheel and axle positions. All exhaust system components must also have a minimum of 2.0 in. clearance to brake hoses in closest positions. (Be sure to account for brake hose travel with suspension).

Body builder is to verify that the brake warning switch is operative. The brake warning switch on models equipped with vacuum-hydraulic brakes is located adjacent to the master cylinder vacuum unit. This includes both the brake system differential pressure and parking brake actuator switch.

Section 6 – Engine

For additional information refer to ***Body - Section 1***.

Air conditioning and auxiliary belt-driven equipment installation recommendations:

No alterations or additions to the accessory drive belt system will be warranted on serpentine belt systems.

The serpentine belt type of drive is designed as a total system, incorporating a single poly-V belt and an automatic tensioner. In this type of system, degrees of pulley wrap, belt tension, and pulley alignment are very critical factors. Modification is not recommended.

In some single belt serpentine systems, belt tension is determined by the automatic tensioner and its position relative to the belt. No adjustment required.

Due to the critical nature of the accelerator system, anyone making modifications or alterations assumes complete responsibility for system reliability, performance and compliance to FMVSS 124. Caution must be exercised so that the accelerator cable is properly routed. Specifications are as follows:

- Route cable to maximize all bend radii. In no case should bend radii be less than 3 in. (76 mm).
- Minimum distance from exhaust manifold to be 6.0 in. (150 mm), unless a heat shield is provided.
- Do not use accelerator cable or clips to route wires, harnesses or other cables. Cable sheath must be clipped so as not to pinch inner cable. Cable must not be loose in clip allowing sheath to move when accelerator pedal is applied and released.
- Cable must not be subjected to kinking or routing across any sharp edges.
- Cable routing must be perpendicular to the surface of the front-of-dash at the dash fitting. No objects or routings should force cable to have a bend at the dash fitting. Flexible components (hoses, wires, conduits, etc.) must not be routed within 2.0 in. (50 mm) of moving parts or accelerator linkage unless routing is positively controlled.
- Caution must be taken so that the accelerator pedal remains properly located. Guidelines for accelerator pedal locations are as follows:
  1) Ensure that the accelerator can freely operate from idle to wide-open throttle position and return. Make sure that the pedal will not hang up on any nearby items such as carpets, floor, screws, wiring harnesses, etc. Engine cover should have at least one inch (25 mm) clearance to side of accelerator pedal with the carpet mat installed.
  2) Accelerator to brake pedal relationship has been designed to provide minimum driver movement and should not be altered in any way.

Gasoline engine induction and/or ignition system is certified in compliance with the Federal Vehicle Emission Standards. Any alterations to the systems or components could void compliance and render the vehicle illegal. System includes:

- Fuel system – throttle body injector (TBI) or central port injector (CPI) and associated tubes, hoses and pipes, air cleaner outside air hose and spacer heat stove and heat stove pipe, fuel pump and inlet manifold, fuel vapor canister.
- Exhaust system.
- Ignition system distributor and initial spark timing setting, spark plugs, spark plug wires.
- Crankcase ventilation system.

Diesel engine induction and injector pump system is certified to be in compliance with the Federal Vehicle Emission Standards and/or Noise Standards. Any alterations to the system or components could void compliance and render the vehicle illegal. System includes:

- Fuel system – Injection pump, injector lines and injectors, fuel return hoses and pipes, air cleaner, outside air hose, fuel pump, fuel filter, fuel heater assembly and intake manifold.
- Exhaust system.
- Crankcase pressure regulation system.
- Charge air cooler system.
- External engine components such as air cleaner, crankcase pressure regulator valve, alternator, injection pipes, fuel return hoses from injectors, exhaust manifolds, oil fill pipe, etc. must be provided with sufficient clearance for engine roll and torque.
- When a vehicle is equipped with a electronic fuel injection (EFI) engine, it has an engine control module ECM/PCM/TCM or VCM. This ECM/PCM/TCM or VCM must be maintained at a temperature below 185°F at all times. This is most essential if the vehicle is put through a paint baking process. The ECM/PCM/TCM or VCM will become inoperative if its temperature exceeds 185°F. Therefore, it is recommended that temporary insulation be placed around the ECM/PCM/TCM or VCM during the time the vehicle is in a paint oven or undergoing another high temperature process.

Section 7 – Transmission

Light duty models equipped with manual transmission have a clutch-operated start safety switch. Starter should operate whenever the ignition is turned to start and the clutch is fully depressed. Readjust if necessary as outlined in the Truck Service Manual.

Models equipped with automatic transmissions have a steering column mounted neutral/park start safety mechanical lockout feature, which interfaces with the steering column ignition switch. Starter should operate only when gear shift lever is in neutral or park position. Readjust the shift linkage if necessary as outlined in the Truck Service Manual.

Power Take-Off (PTO) systems refer to ***General - Section 0***.

- The NV4500 manual 5-speed heavy-duty overdrive transmission (RPO MW3) requires the use of special synthetic lubricant to reduce transmission internal operating temperatures. The lubricant is installed in all NV4500 transmissions at the factory.
- In instances where it is necessary to drain and refill or add fluid to the transmission, such as when installing PTO, DO NOT substitute any other lubricant. Installation of other lubricants may result in internal transmission damage.
- Castrol Syntroq GL4 is the only synthetic lubricant currently approved for use in the NV4500. This product can be secured through your local GM dealer under GM part number 12346190 per quart.
- Transmission lubricant capacity is 8.5 pints.

Models equipped with manual transmission use a hydraulic clutch actuator. Check fluid level as outlined in the vehicle owners manual.

It is mandatory that no change be made to the clutch master cylinder location, clutch master or slave cylinder push rod length, or pedal position.

Section 8 – Fuel and Exhaust

Fuel Systems

The fuel evaporative emission control equipment is certified to be in compliance with the Federal and California Vehicle Emission Standards. Metal fuel lines and fuel tanks have a surface coating to reduce corrosion on inside and outside surfaces to comply with useful life requirements. All fuel hoses are made of a low permeation multi–layer material to comply with enhanced evaporative emission requirements. Any alterations to systems or components including materials, hose lengths and their location, except as described in the fuel fill system modifications section, could void compliance. The system includes:

- Fuel tank, fuel level sender, fuel fill and vent hoses and pipes, emission canisters, fuel feed, fuel return and vapor lines, purge control solenoids, fuel fill cap, canister vent solenoid.

For these reasons,

NO ALTERATION OF THE FUEL SYSTEM IS RECOMMENDED

Fuel Fill

It is recommended that when mounting the fuel filler pipe assembly and vent hose that a minimum of 3.0 in. clearance be provided to any body component to prevent contact between hoses and/or mating parts and that retention be provided to ensure routing and prevent failure due to wear and fatigue. Both the fill and vent hoses must be routed (and supported, if needed) such that there are no sags or kinks. As viewed from the filler neck, pipes and hoses must have a downward slope toward the tank.

There should be a minimum of 4° of downward slope in the fill and vent pipe at any location. No fuel traps are allowed. Alterations of fuel line routings could affect the ability of the completed vehicle and are, therefore, not desirable. The complete fuel system must comply with FMVSS 301.

If additional new hose is required when installing fuel tank filler neck, this hose must be suitable for use with unleaded fuels or diesel fuel respectively and must allow the vehicle to meet enhanced evaporative emissions requirements.

Fuel Lines

Fuel line routing precautions:

- 12 in. minimum clearance to exhaust system is required or a metal shield must be provided.
- Fuel lines should be clipped to chassis to prevent chafing. Metal clips must have rubber or plastic liners.
- Use corrosion resistant steel tubing with short sections of approved hose to connect components. Hose-to-tube connections should be clamped for diesel systems. Steel tube ends should be beaded for hose retention. Fuel supply is pressurized by an in-tank pump for TBI and CPI systems. Coupled hose or nylon quick-connects must be used. Clamped hose is not acceptable for TBI and CPI systems.

All engines require a fuel return system which returns excess fuel from the injection pump and injector nozzles back to fuel tanks. Care should be taken that these lines are not blocked nor their hoses pinched. The engine may run poorly or stall if these lines are restricted or blocked.

All gasoline engine vehicles are equipped with fuel evaporative emission control equipment which is certified to be in compliance with the Federal or applicable California vehicle emission standards. Alterations to fuel tank and metering unit, lines, canister or canisters, canister filters, canister purge control valves, relay switches, tank auxiliary vent valve, engine speed controller, or other devices/systems are therefore not allowable since vehicle adherence to C.A.R.B. and Federal regulations may be affected.

Diesel powered vehicles incorporate water drain provisions in the fuel system. These valves are only to be opened when siphoning water and contaminants from the fuel system.

Body attachment brackets and u-bolts must be located such that there is adequate clearance to all fuel system components, such as the fuel lines and the fuel level sending unit, under all operating conditions.

Fuel Tank

For vehicles with full frames, the tank must have a minimum clearance of 2 in. top, front, rear and sides to body and other supports.

Tank may be pressurized to 1.25 PSI maximum to check for final line leakage or for forcing fuel through the system. Pressures greater than this amount may be detrimental and affect tank durability.

The use of auxiliary fuel tanks is not recommended. If an auxiliary fuel tank is added, the alterer must take responsibility for compliance with affected motor vehicle safety standards. Also, if an auxiliary fuel tank is added to a gasoline-powered vehicle, the fuel must be drawn through a pipe at the top of the tank (balance line between tanks is not permitted).

Gasoline fueled vehicles are now equipped with a fuel pump return line. If an auxiliary tank is added, the tank selector valve must include a return port which returns fuel to the tank from which the fuel is being drawn.

In gasoline engines the fuel pump is located in the fuel tank. The battery must be disconnected before starting any work on the fuel system.

Gaseous Fuel Conversions

All truck gasoline engines may be converted to use liquified petroleum gas (LPG) or natural gas (NG); GM only approves the conversion of vehicles with option KL5 in combination with engine L31 (5.7L). However, some conversions may cause harmful effects to the engine. Such fuel systems may require assurances from alternate fuel system manufacturers and/or installers that the equipment will not cause damage to the engine or the exhaust system.

In the use of dual fuel systems, the vehicle operator should strictly adhere to the manufacturer's procedures for switching from gasoline to gaseous fuel operation. Improper switching procedures may result in overheating and damage to the exhaust system and the vehicle. The gaseous fuel tank should not be mounted in an enclosed area of the vehicle, such as the passenger compartment, truck, etc., and the system should be vented to the outside of the vehicle. In addition, vehicles converted to gaseous fuels should not be stored in enclosed places such as garages. Further, General Motors cautions purchasers that the design, location and installation of any type of fuel storage system involves significant technical and engineering considerations and that these statements on gaseous fuel conversions should not be interpreted to be an approval by General Motors of any modification to the original equipment fuel system.

Conversions to gaseous fuel should be made in conformance with applicable Federal and State regulations. Removal of emission-control components, or the addition of gaseous fuel systems which could damage or reduce the longevity of those components and could also cause the mechanical and emission performance warranty to be voided.

Exhaust System

Particular care should be taken to prevent the possibility of exhaust fumes and carbon monoxide exposure to vehicle occupants in units completed by body builders. Holes and openings through the floor and all other parts of the body must be permanently and adequately sealed by the body builder to avoid exhaust intrusion into any occupant area. If it is necessary to change the exhaust outlet location, the exhaust discharge must be unobstructed and directed away from occupant areas. Alteration of the exhaust outlet or its position may increase exhaust noise and render the vehicle illegal in those areas with pass-by noise regulations. All vehicles >10,000 lbs. GVWR come under Federal noise regulations, vehicles ≤10,000 lbs. GVWR are regulated by various state and local regulations of the Environmental Protection Agency; see those regulations for rules, test procedure and noise levels permitted.

Tail pipe outlet location must be tested statically and with the vehicle in motion to ensure that exhaust gases do not penetrate side or rear windows or under body seams and holes. Auxiliary power plants should also be tested under the same conditions. Tail pipe exit ahead of rear wheels is not recommended.

Check for leaks in exhaust systems and repair as required.

Exhaust temperatures can exceed 1600°F under extreme operating conditions, with pipe surface temperatures slightly less than this. Extreme care must be used when placing body components in the proximity of the exhaust system so as not to exceed the rated temperature limits of the components. Due to variants in underbody configurations of the vehicles, we are not in a position to make recommendations on how to insulate or design components in the proximity of the exhaust system.

Each manufacturer must make temperature checks of critical areas of his vehicle and adjust his design accordingly, or provide shielding to ensure safe operation of his body components.

The same can be said for the engine compartment. Obviously there will be additional heat radiated from the engine. How much is retained in the area will depend on how well this area is ventilated in your individual designs. Here again, temperature checks of interior areas surrounding the engine should be made to determine if your insulation is adequate. This is the same engineering practice we have followed on our complete vehicles incorporating these exhaust systems.

Exhaust system materials are selected and tested to withstand the operating environment of the vehicle. ***Do not modify the exhaust system in any way.*** The tail pipes are made of 409 stainless steel.

Heat shields are mounted to the underbody and/or exhaust system components (catalytic converter and muffler). Shields for the propshaft hanger bearings are also provided in some vehicles.

Section 9 – Steering

Check power steering fluid level and system operations. (Refer to Owner's Manual)

Steering wheel and horn pad must not be altered or replaced.

The steering column mast jacket not to be altered.

Section 10 – Tires

Check wheel lug nuts for proper torque; specifications are provided in the Owner's Manual.

Substitution of tires of greater capacity than those offered as original equipment by vehicle manufacturer is not approved for use on original equipment wheels. Any usage of higher capacity tires must be accompanied by higher capacity wheels. However, the wheel offset and distance from centerline of rim to wheel mounting face must be the same as the replaced original equipment wheel to ensure proper wheel bearing loading and clearance of tires to body and chassis components. Increasing tire and wheel capacity does not necessarily increase vehicle GVW ratings.

Any substitution of tires may affect Speedometer/Odometer accuracy.

It is recommended that tire chain clearance guideline, J683 from the Society of Automotive Engineers be adhered to in designing rear wheelhouse clearance.

Check tires and inflate to recommended tire pressure according to the tire pressure information provided in Owner's Manual and tire inflation label provided with vehicle.

Section 12 – Electrical Battery and Battery Cables

The vehicle battery should be located and positioned to make use of the existing battery cables. If the battery requires relocation and longer cables are required, a proportionately larger gauge wire must be used. If in relocating the battery the negative ground cable is attached to frame rail, a cable of similar gauge be provided between the frame rail and the engine. This is required due to the heavy electrical loads imposed by the starting circuit. To ensure proper operation of the battery cables the following chart on length, gauge and materials must be strictly adhered to:

Combined length of positive and negative	
Cable Gauge	**Cable in Inches (Copper)**
4	66
2	107
0	170

If the battery is remotely mounted (other than in the engine compartment) the 'sense' circuit in the generator regulator shall be used. The sense circuit consists of a 7.76 OHM 1/4 watt resistor connected in series between the 'S' terminal of the generator and the B+ terminal of the battery.

Auxiliary Battery (Gasoline Engines Only)

If an auxiliary battery is to be retro-fitted, the electrical schematic for option TP2 is recommended as a guide. This will result in the auxiliary battery being connected to the vehicle load and charging circuit when the ignition switch is 'on' (fuse block terminal "Acc.Ign.Fused"). When the ignition switch is turned off, the interlocking relay is disengaged and the auxiliary battery is disconnected from the vehicle circuit.

Modifications/add-on wiring must be carefully reviewed to ensure compatibility with the base vehicle wiring by reviewing system schematics, wire routing paths, harness connections, etc. Due to the wide range of modifications that may be required for vocational needs, it is not feasible for the O.E.M. to take into account all potential revisions. For this reason, any person modifying existing vehicle wiring must assume responsibility that the revisions have not degraded the electrical system performance. Any add-on wiring must be properly fused and routed to prevent cut, pinch, and chafe problems, as well as avoid exposure to excessive heat. Care must be exercised that existing vehicle interfaces do not have their current load capabilities exceeded, and that the respective control devices are not overloaded. Added wire size should be at least as large as the the wire to which it is attaching in order for fuse protection to be maintained.

A Packard electric wiring repair kit is available through Kent–Moore (GM P/N 12085264, Kent–Moore P/N J38125-4). This kit contains instructions, tools and components for making repairs to wiring harness components. This kit would also greatly assist in accomplishing necessary add-on wiring such as body marker lamps, so that system reliability/durability is maintained.

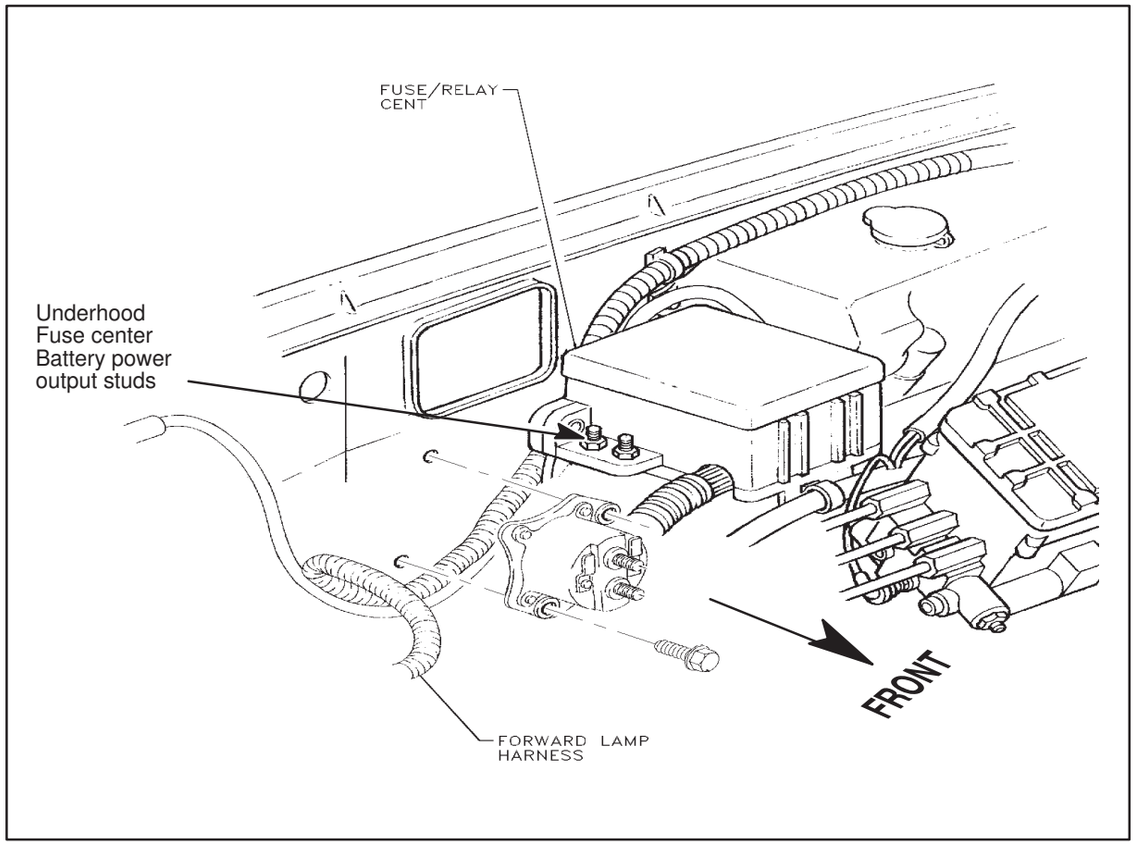
Electrical wiring components can be obtained through your authorized GM dealer. Many Packard Electric components are also available through Pioneer Standard Company (1-800-PACKARD). Pioneer may also be able to assist in making necessary wiring additions by providing custom wiring stubs or jumpers to your specifications.

Fusible Link Repair Procedure:

1. Cut damaged fusible link from wiring harness assembly splice.
2. Strip insulation from harness wire as required to splice on new fusible link.
3. Fabricate a new fusible link wire approximately 6 to 8 in. long from the same wire size as the original link. (Acceptable fusible link material will be imprinted with the wire size and the wording to identify it as fusible link. Fusible link cable is not the same as normal vehicle wiring.)
4. Terminate fusible link harness wire with a suitable compression splice clip, and solder with an electrical grade rosin core solder. Splice area with heat shrink tubing to provide electrical insulation, as well as mechanical strain relief at the splice.
5. Strip, terminate, solder, and insulate remaining end of fusible link with appropriate termination to be compatible with the rest of the electrical system.
6. For further information, refer to the instruction manual in the wiring repair kit referenced elsewhere in this section.

Accessory Power Supply Feed

For power requirements to service additional devices to be added by Body Builders/ Upfitter, the power supply source may be at either of the two fuse center output studs at the underhood fuse center. Each stud is protected by a 30-amp Maxi fuse inside the fuse center. If more than 30-amp is required, the battery should be used as a power supply source.



Section 13 – Cooling

To provide satisfactory engine cooling, the following conditions must be met:

1. Do not locate any large objects in front of the radiator core or grille such as batteries, spare tires, lights/sirens, etc. They restrict air flow into the radiator core and influence fan blade stress.
2. Grille opening, size configuration and the external baffles provided should not be altered in any manner. Any reduction in cooling ability may adversely affect engine/transmission performance.
3. Fan clutches not conforming to the original equipment specifications may not operate correctly and may stay “on” continuously, never come on, or cycle on and off excessively. This will result in a reduction of fuel economy, engine overheat at times, and annoying cycling respectively.
4. Heavy duty cooling equipment is required when air conditioning, auxiliary belt driven equipment, snow plows, winches, etc. are installed.
5. Continuous coolant flow is necessary from heater connection on engine-to-heater connection on radiator to control transmission oil temperatures during closed thermostat (warm-up) operation. Do not alter this flow as it may result in premature engine or transmission failure.
6. If a heater unit is not installed in the vehicle or a heater shut-off valve is required, a line connecting the heater connection on the engine to the heater connection on the radiator must be installed. When a shut-off valve is required in heating system, it must be teed into the system in such a manner as to maintain continuous flow between engine heater connection - radiator heater connection at all times.

Do not install any internal flow restrictors.

- Heater hose:
  3-way or 4-way valves must be used to provide constant water flow through the intake manifold pad area used to mount the TBI unit.

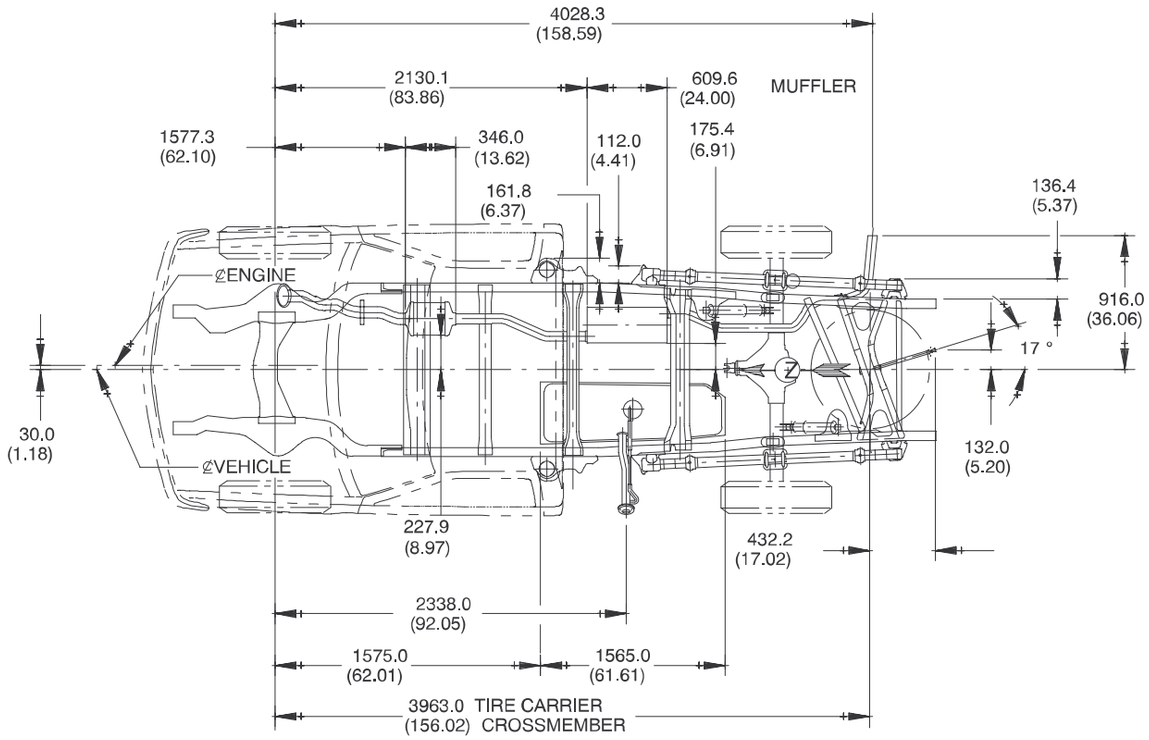
NOTE: TBI unit does not have internal coolant passages.

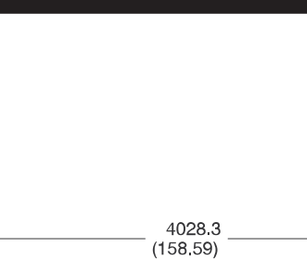
- If in-line shut-off valve is used in combination with 3 way valves, shut-off valve must not be closed until 3-way valve at engine is in the proper position.

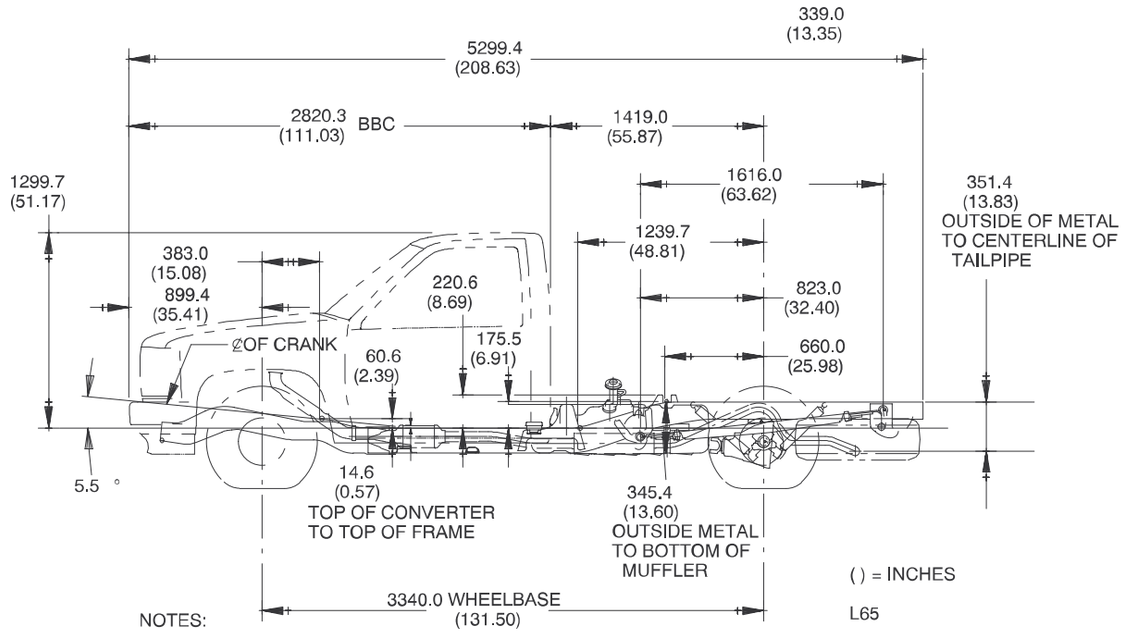
Valve Sources		
3 Way	Red-White Valve Corp., Carson CA	(213) 549-1010
	Ranco Controls Div., Delaware OH	(614) 876-8022
4 Way	Ranco Controls Div., Delaware OH	(614) 876-8022

Be sure to add coolant to system after adding capacity to system (heaters).

C 30903 (9000 GVWR) Regular Cab, 2 Wheel Drive w/6.5T Diesel Engine







NOTES:

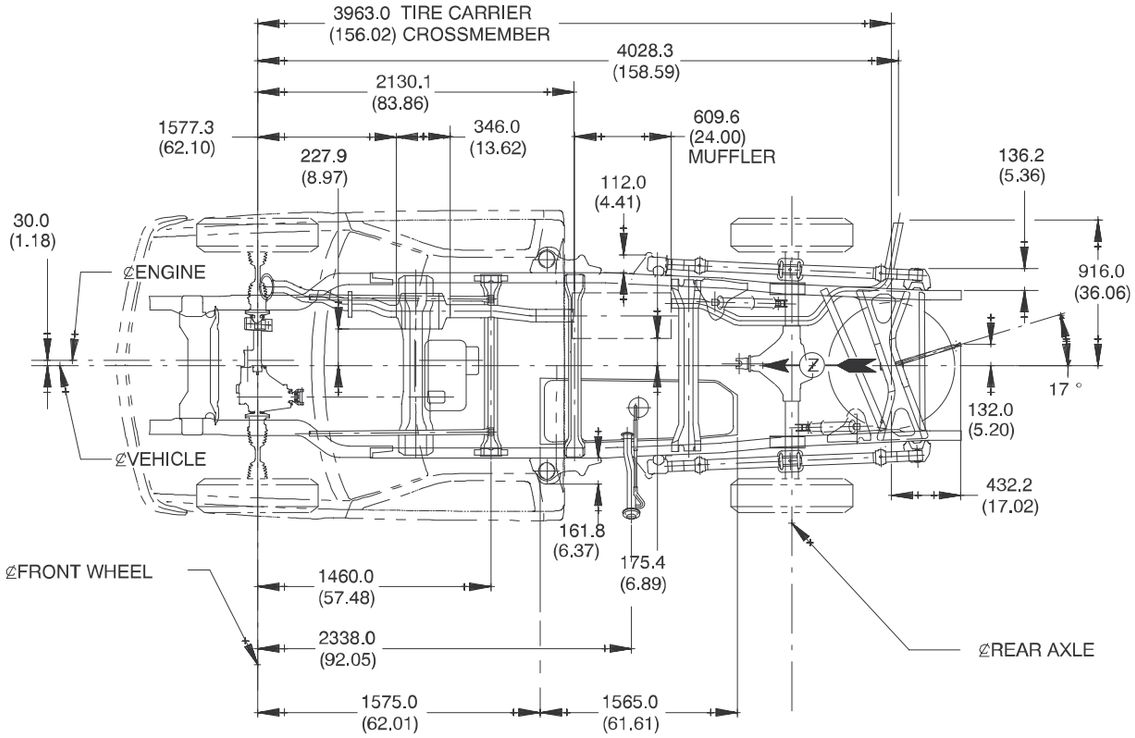
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO OUTSIDE OF METAL

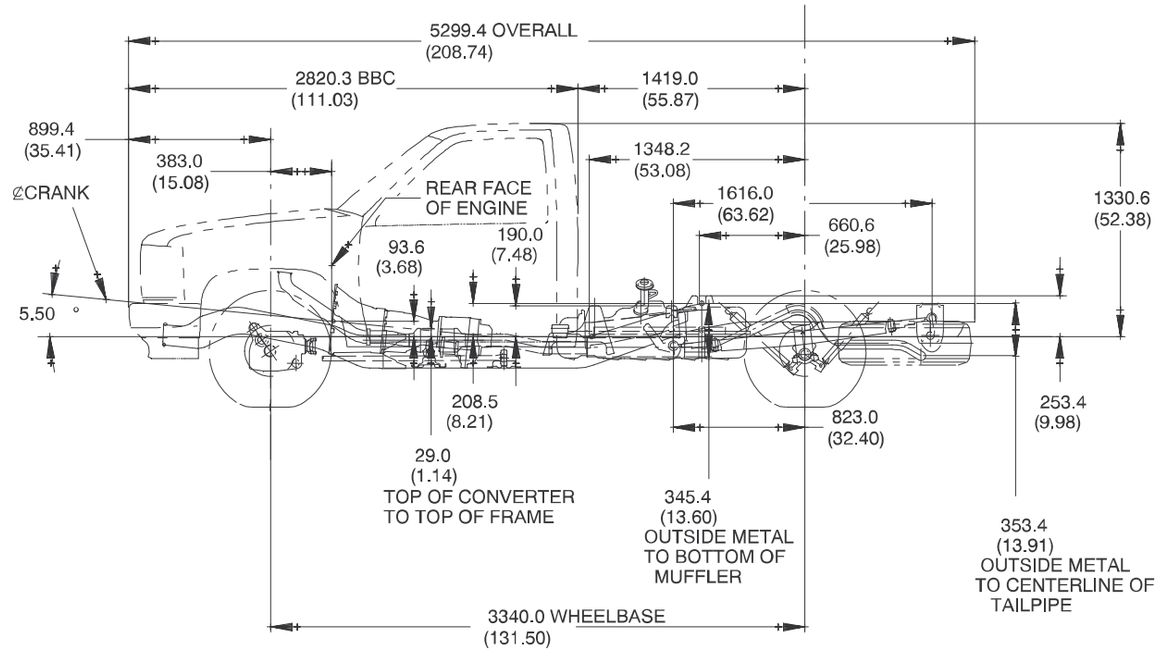
( ) = INCHES

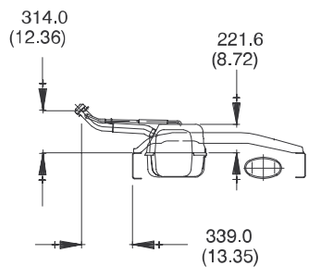
L65

EXHAUST DIMENSIONS ARE FOR DIESELS ONLY

K 30903 (9200 GVWR) Regular Cab, 4 Wheel Drive w/6.5T Diesel Engine







VIEW Z

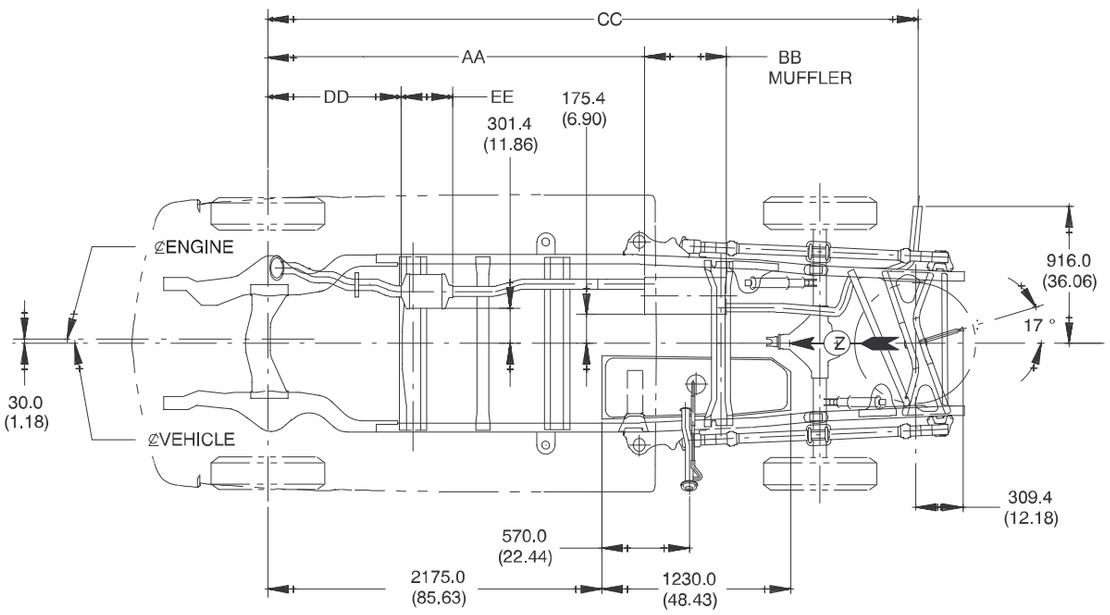
NOTES:

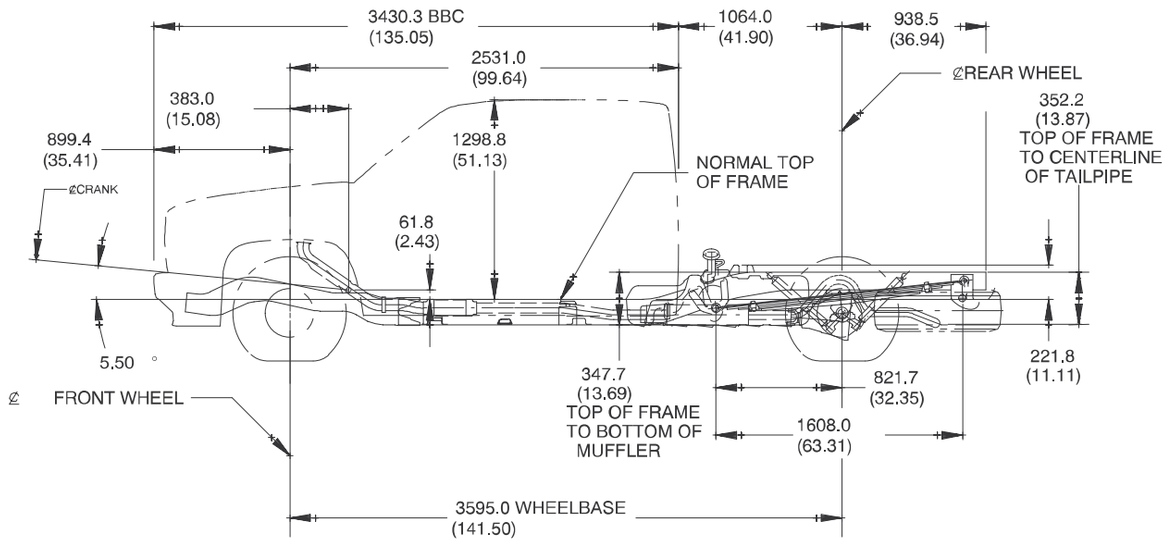
( ) = INCHES

ALL EXHAUST DIMENSIONS ARE
FOR DIESEL ENGINE L65 ONLY

UNLESS OTHERWISE SPEICIFIED ALL
DIMENSIONS ARE TO OUTSIDE OF METAL

C (107/207)53 Extended Cab, 2 Wheel Drive w/6.5T Diesel Engine



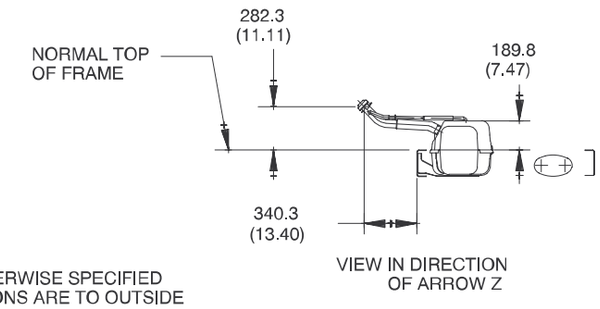


DIESEL EXHAUST DIMENSIONS FOR C20753 ONLY	
	ENGINE OPTION
DIM	L56
AA	2301.3 (96.57)
BB	609.6 (24.00)
CC	4283.3 (168.63)
DD	1243.7 (48.96)
EE	346.0 (13.62)

NOTES:

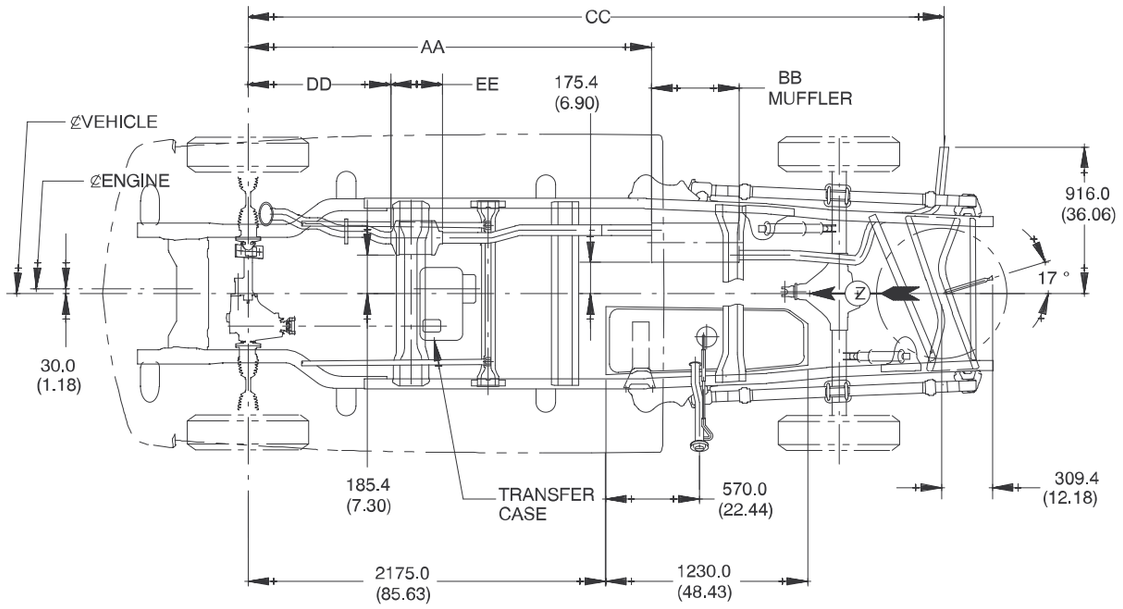
( ) = INCHES

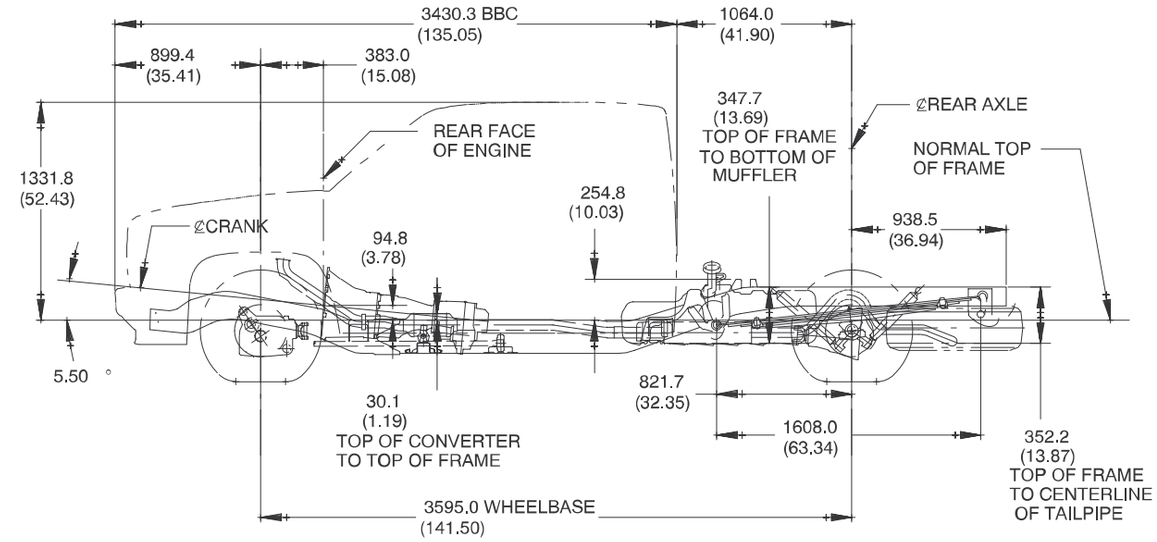
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO OUTSIDE OF METAL.

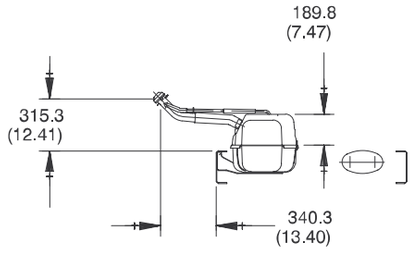


C/K TRUCK (CURRENT)

K (107/207)53 Extended Cab, 4 Wheel Drive w/6.5T Diesel Engine







VIEW IN DIRECTION OF ARROW Z

DIESEL EXHAUST DIMENSIONS

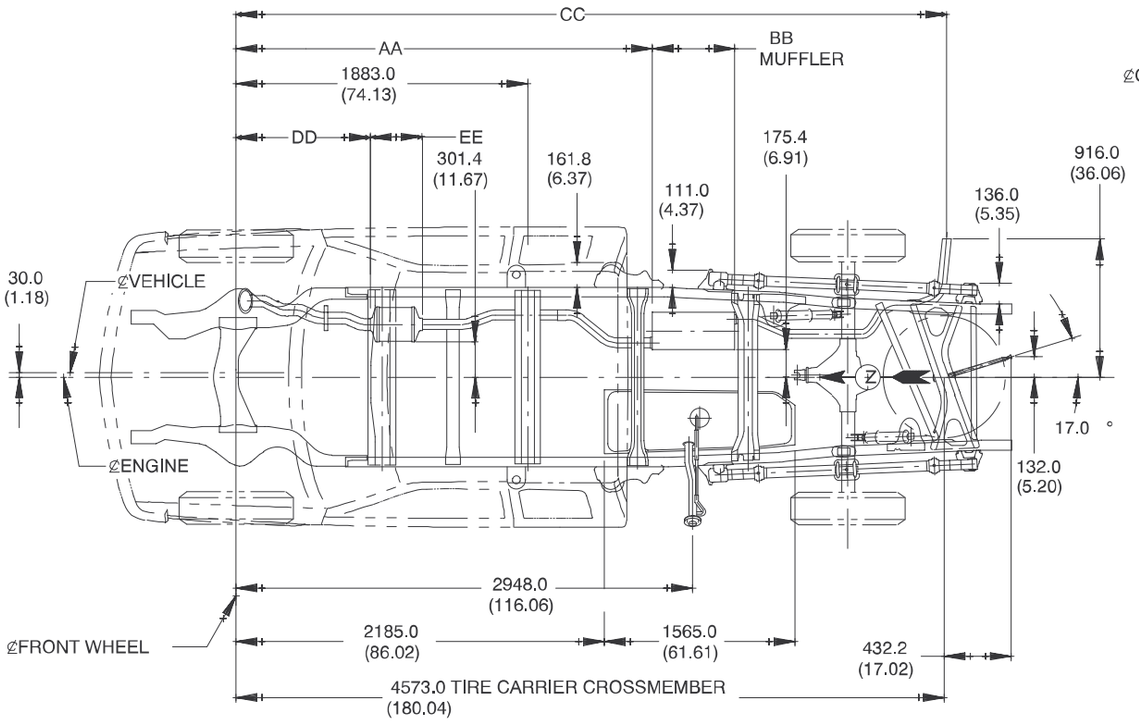
DIM	K10753 & L56 K20753 & L65		
AA	2301.0 (90.59)	DD	945.0 (37.20)
BB	609.6 (24.00)	EE	346.0 (13.62)
CC	4283.3 (168.63)		

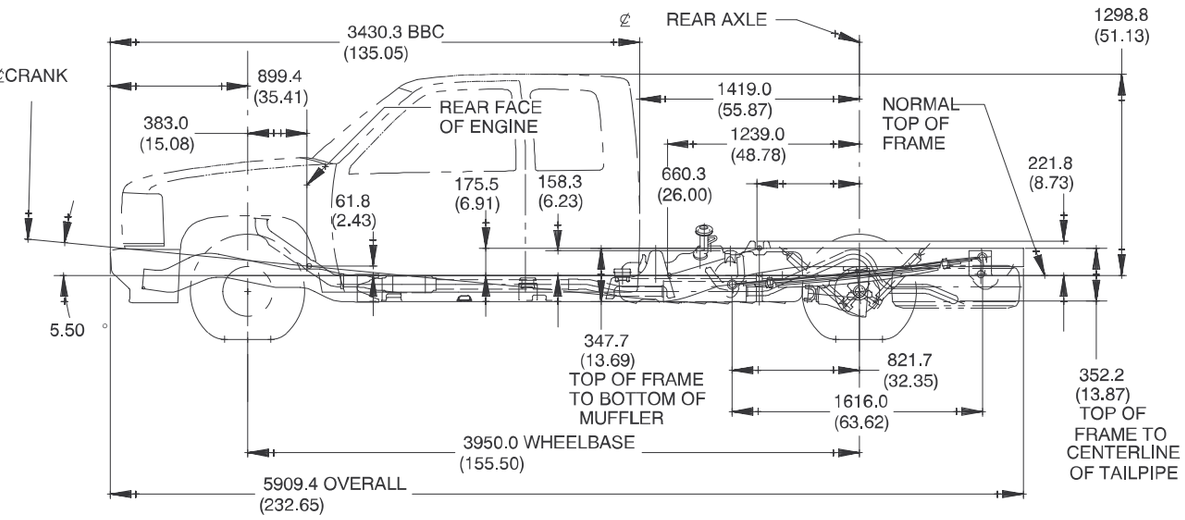
NOTES

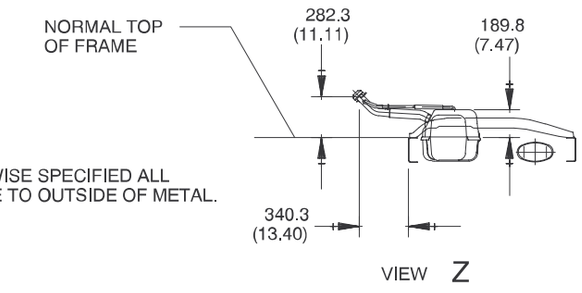
( ) = INCHES

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO OUTSIDE OF METAL

C (109/209)53 Extended Cab, 2 Wheel Drive w/6.5T Diesel Engine







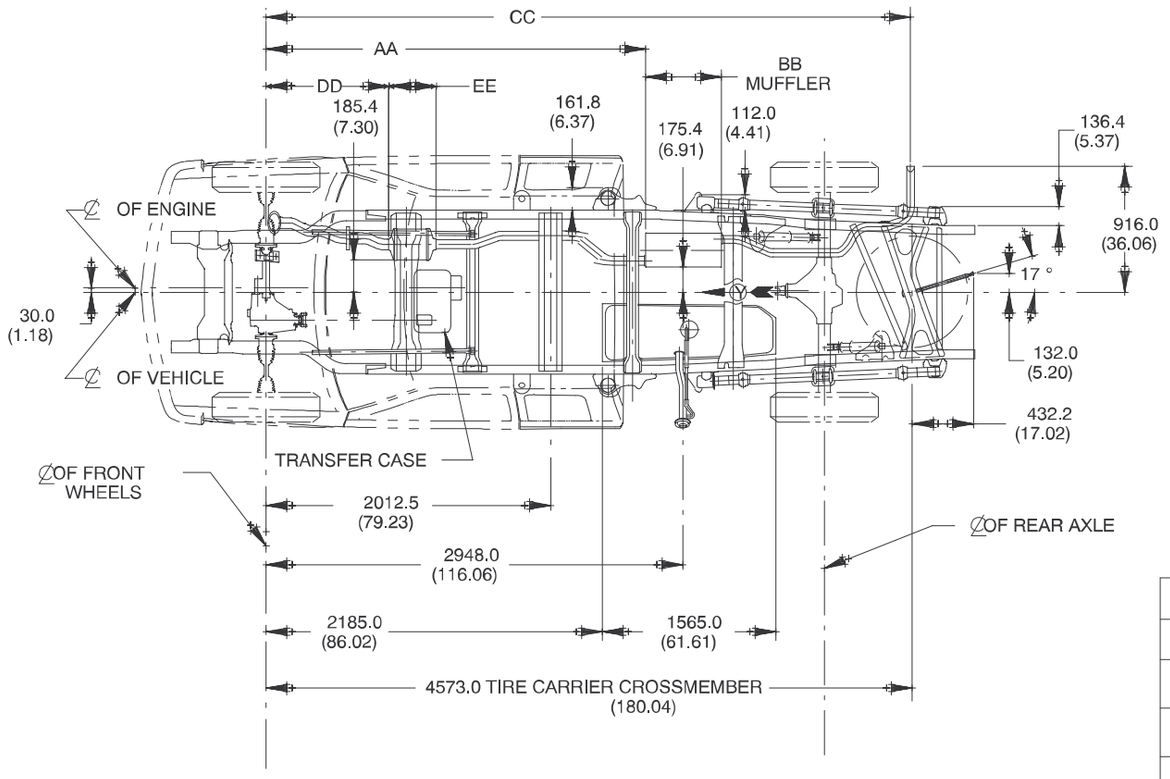
DIM	DIESEL EXHAUST ONLY C20953 & L65 ONLY		
AA	2656.3 (104.58)	DD	1243.7 (48.96)
BB	609.6 (24.00)	EE	346.0 (13.62)
CC	4638.3 (182.60)		

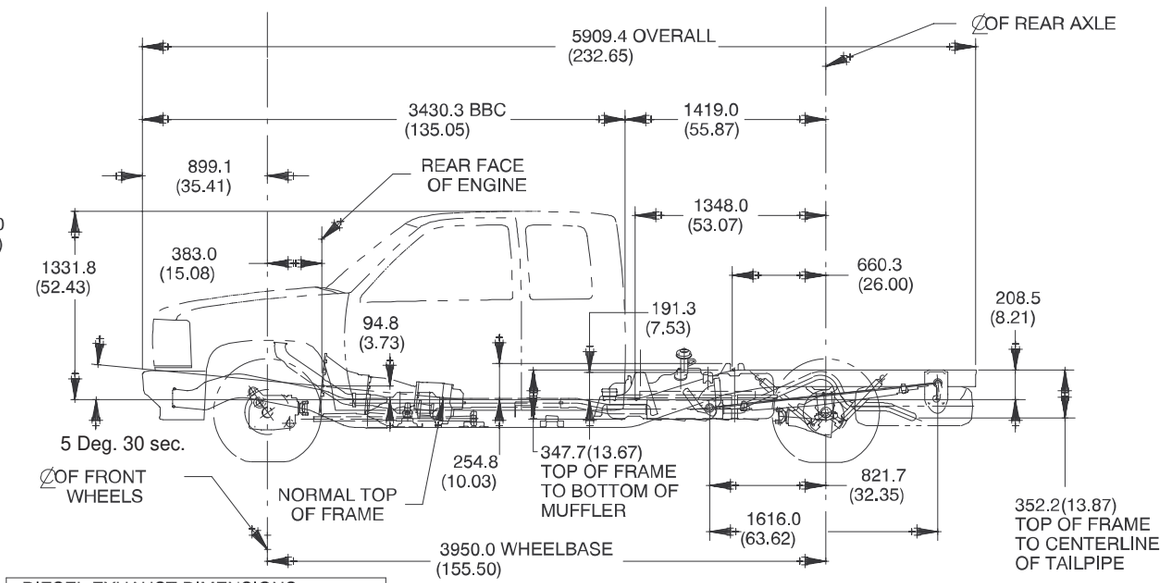
NOTES:

( ) = INCHES

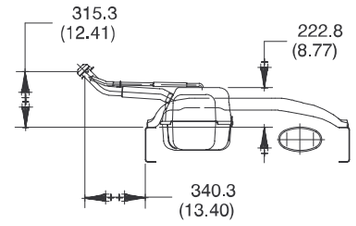
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO OUTSIDE OF METAL.

K (109/209)53 Extended Cab, 4 Wheel Drive w/6.5T Diesel Engine





DIESEL EXHAUST DIMENSIONS K10953 & L56 / K20953 & L65			
DIM	L56/L65	DIM	L56/L65
AA	2656.3 (104.58)	DD	945.0 (37.20)
BB	609.6 (24.00)	EE	346.0 (13.62)
CC	4638.3 (182.61)		



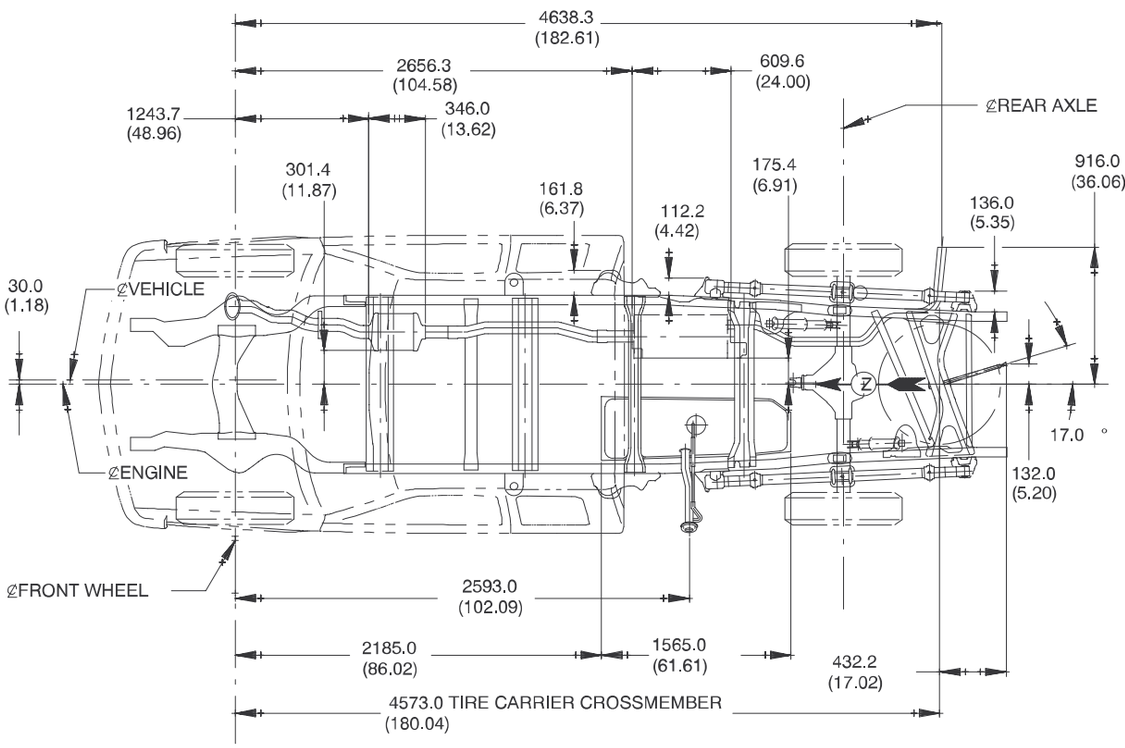
VIEW IN DIRECTION OF ARROW Y

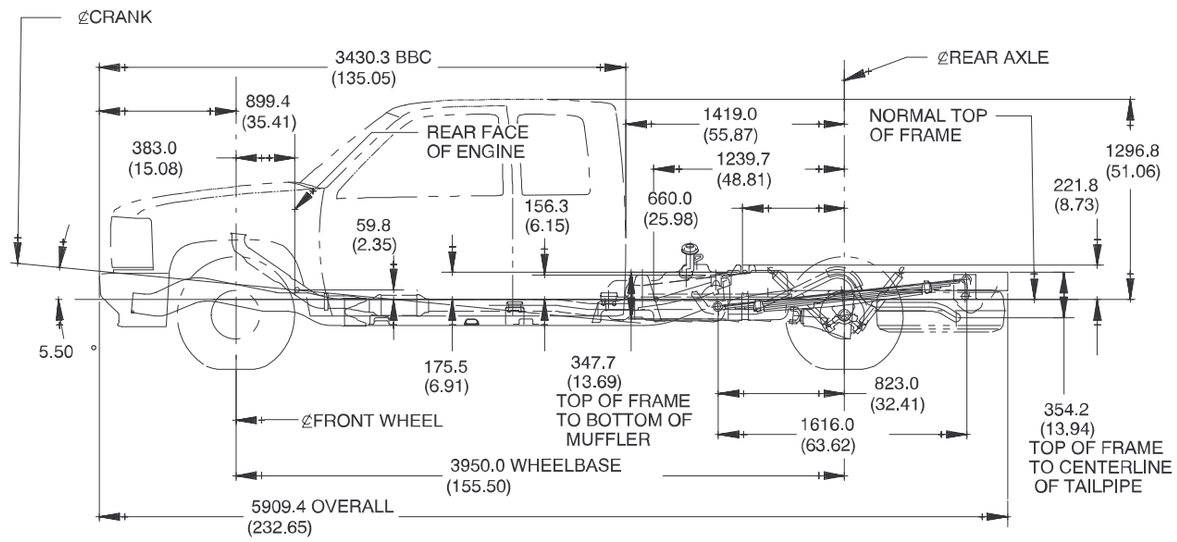
NOTE:

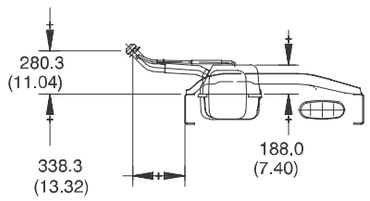
( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO
OUTSIDE OF METAL

C 20953 & C6P (8600 GVWR)/C 30953 (9000 GVWR) Extended Cab, 2 Wheel Drive w/6.5T Diesel Engine







VIEW IN DIRECTION OF ARROW Z

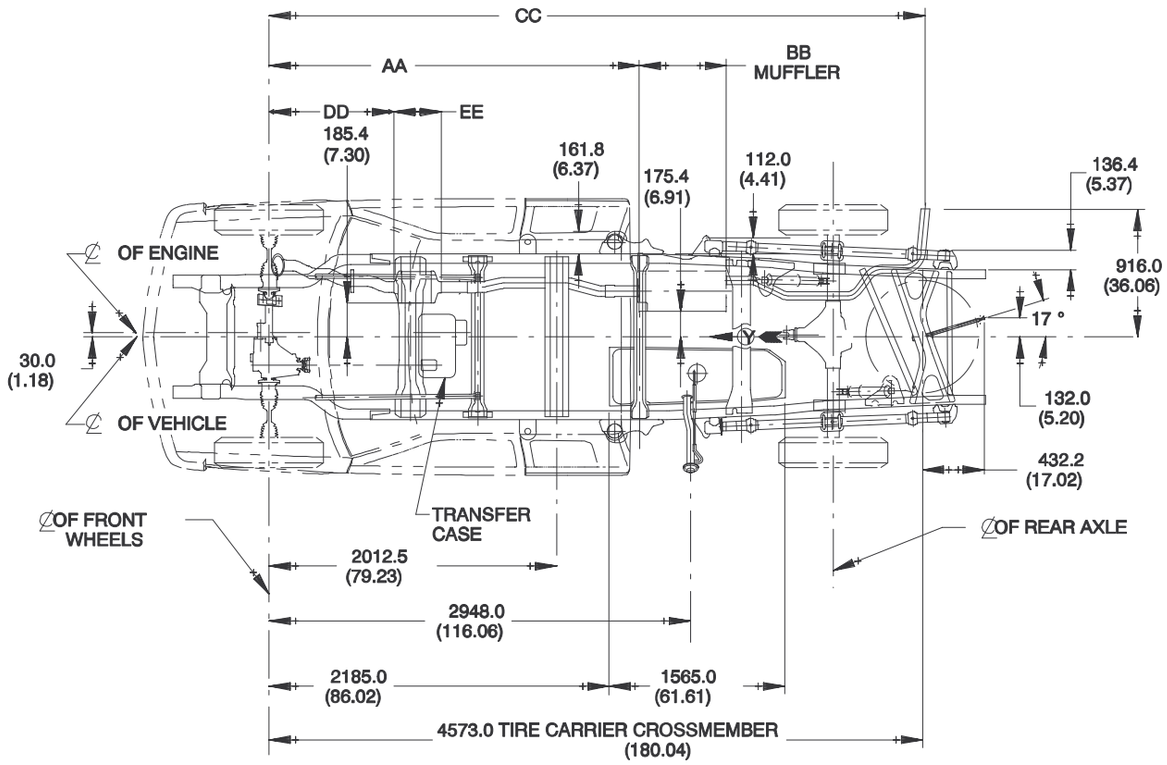
NOTES:

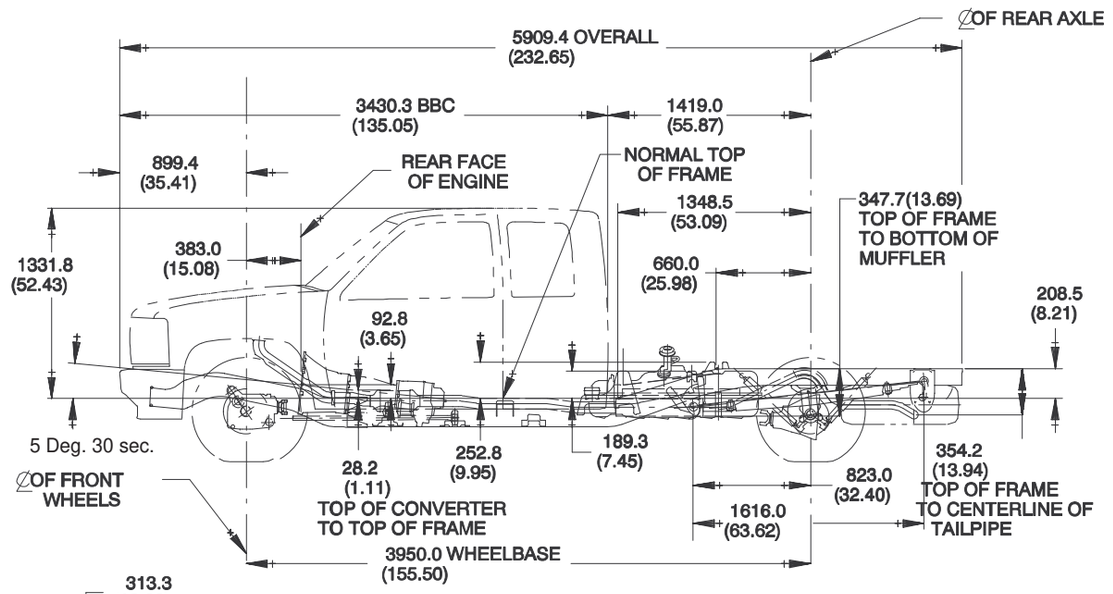
( ) = INCHES

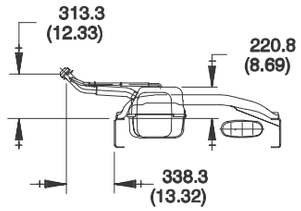
L65 DIESEL ONLY

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO OUTSIDE
OF METAL.

K 20953 & C6P (8600 GVWR)/K 30953 (9200 GVWR) Extended Cab, 4 Wheel Drive w/6.5T Diesel Engine







VIEW IN DIRECTION OF ARROW Y

L65 DIESEL EXHAUST SYSTEM DIMENSIONS			
AA	2656.3 (104.58)	DD	945.0 (37.20)
BB	609.6 (24.00)	EE	346.0 (13.62)
CC	4638.3 (182.61)		

NOTE:

( ) = INCHES

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO OUTSIDE OF METAL

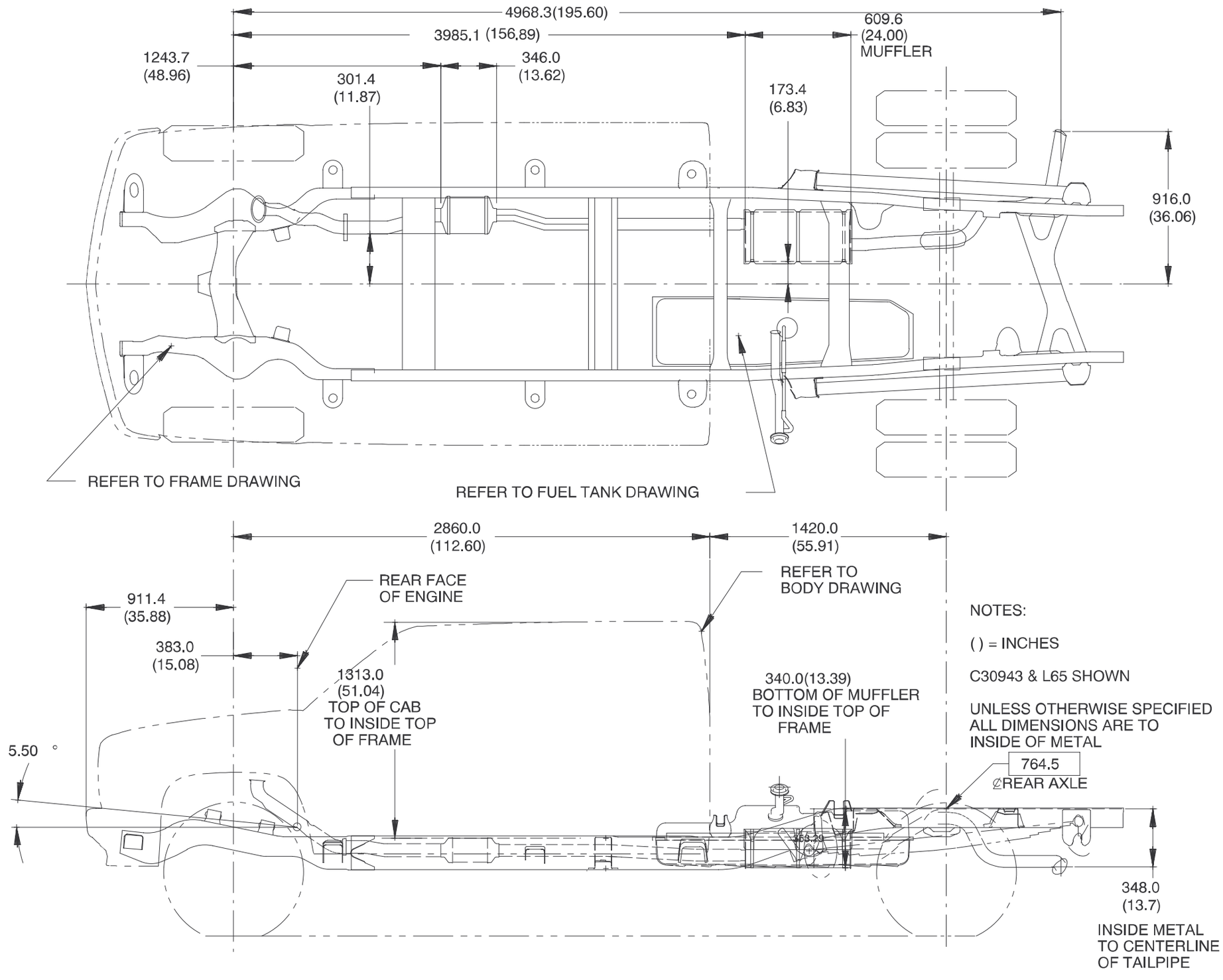
C (207/307)43 Crew Cab, 2 Wheel Drive

DRAWING NOT AVAILABLE AT TIME OF PUBLICATION

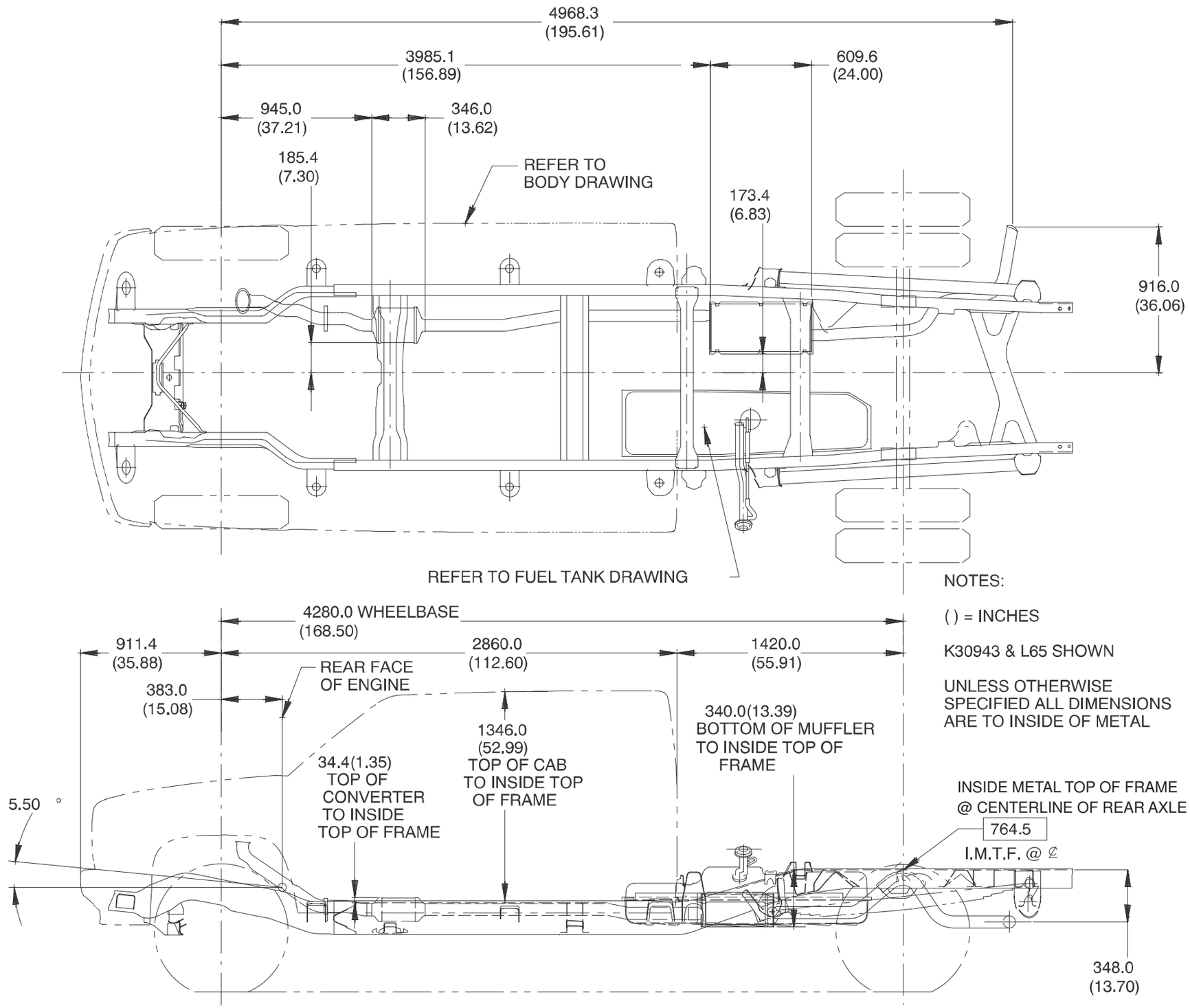
K (207/307)43 Crew Cab, 4 Wheel Drive

DRAWING NOT AVAILABLE AT TIME OF PUBLICATION

C 30943 Crew Cab, 2 Wheel Drive



K 30943 Crew Cab, 4 Wheel Drive



NOTES:

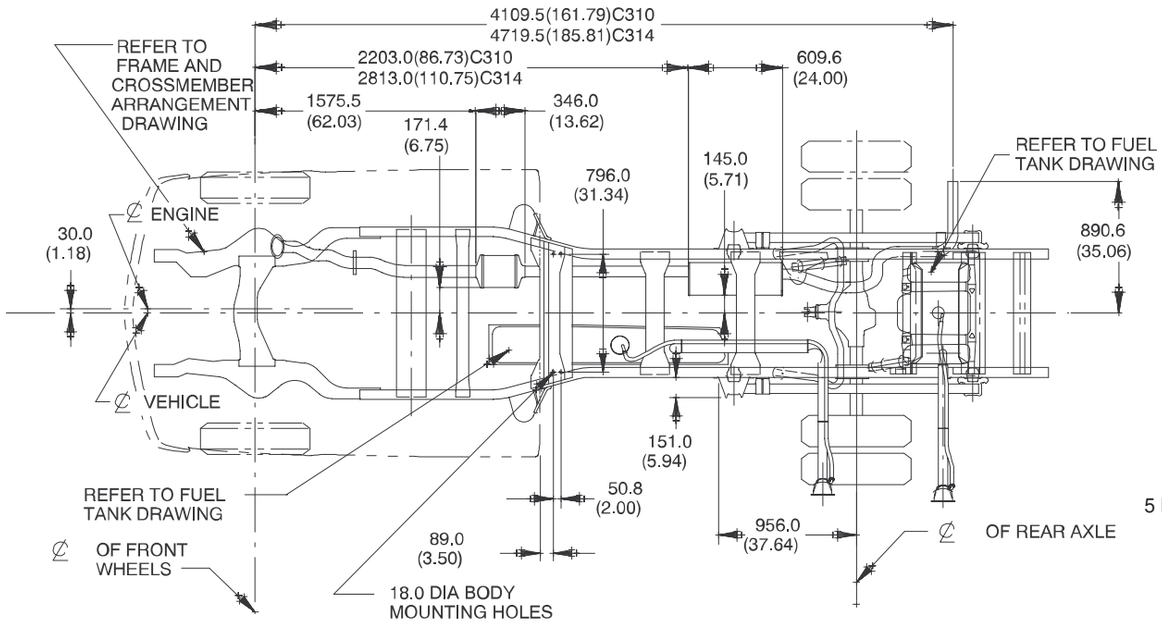
( ) = INCHES

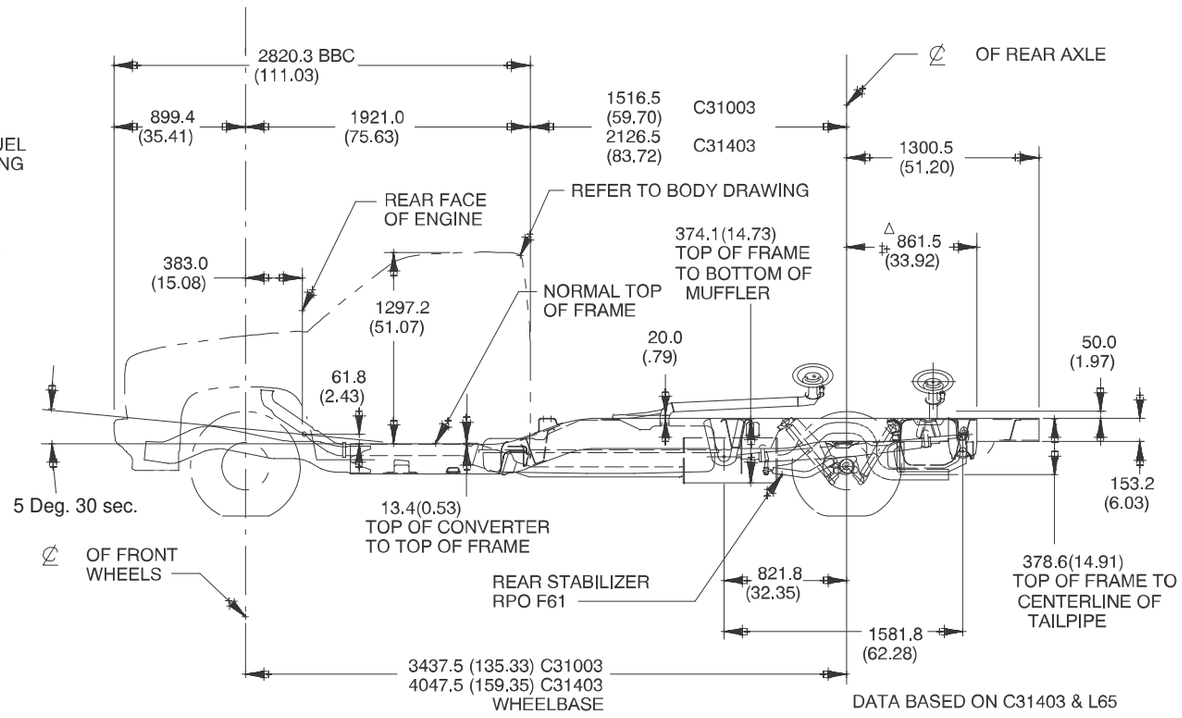
K30943 & L65 SHOWN

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL

C/K TRUCK (CURRENT)

C (310/314)03 Chassis Cab, Regular Cab, 2 Wheel Drive, 10,000/11,000 GVWR w/6.5T Diesel Engine





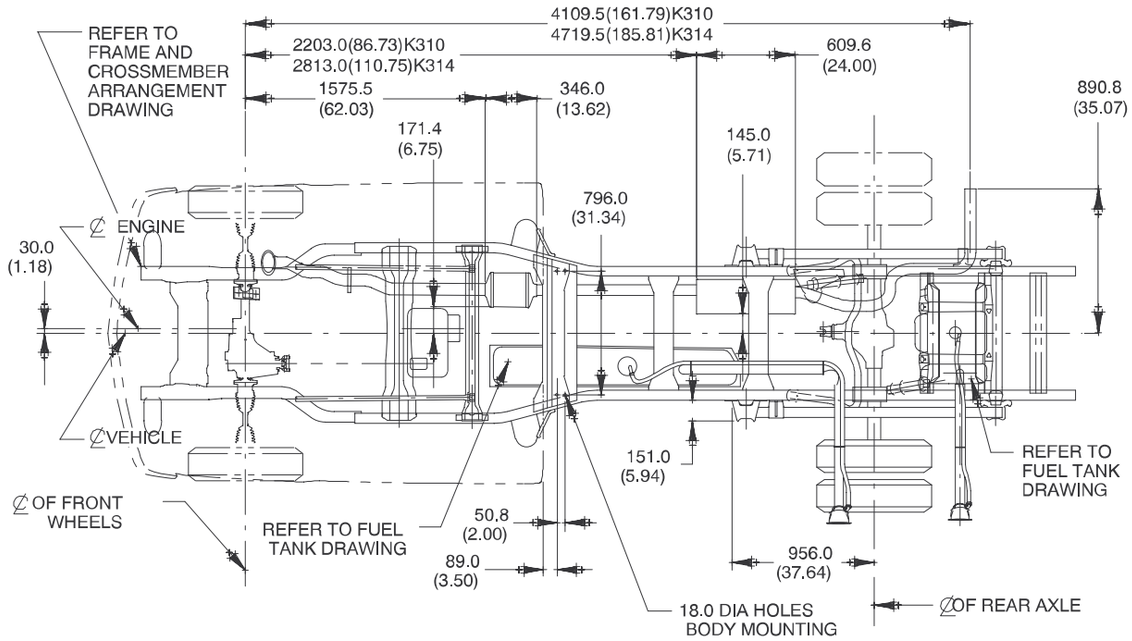
DATA BASED ON C31403 & L65

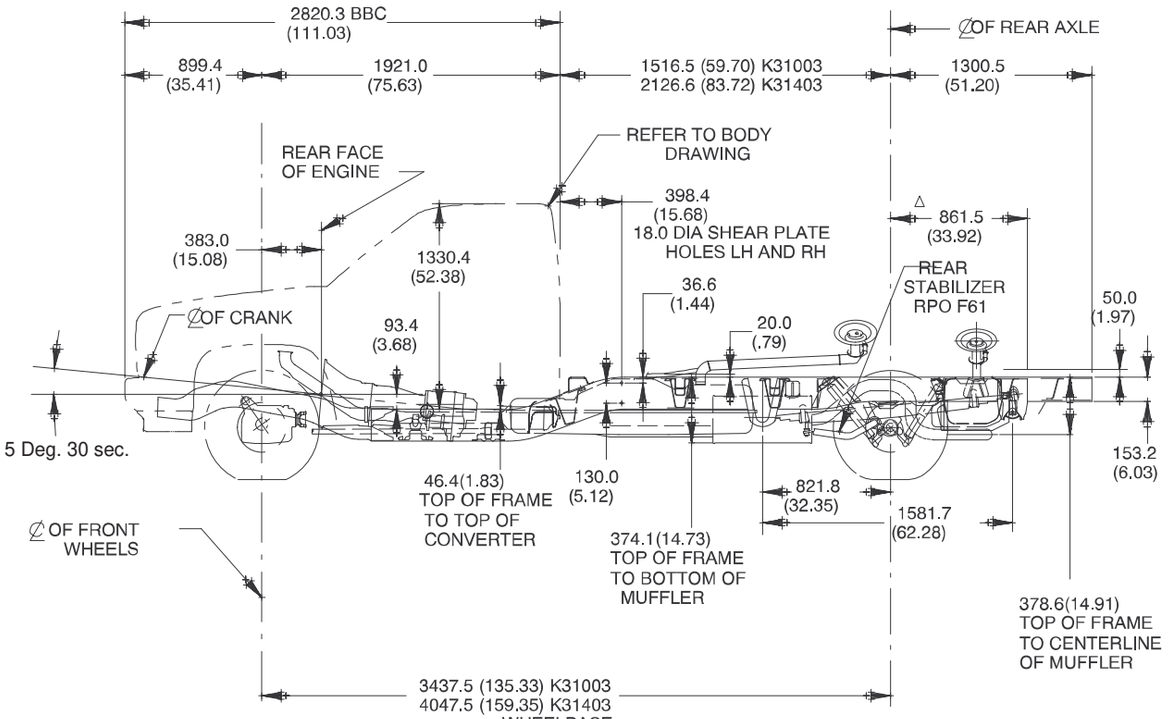
( ) = INCHES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE TO OUTSIDE
OF METAL.

△ MINIMUM CUT–OFF LENGTH
RELOCATE REAR CROSSMEMBER
AS PROVIDED

K (310/314)03 Chassis Cab, Regular Cab, 4 Wheel Drive, 12,000 GVWR w/6.5T Diesel Engine





DATA BASED ON K31403 & L65

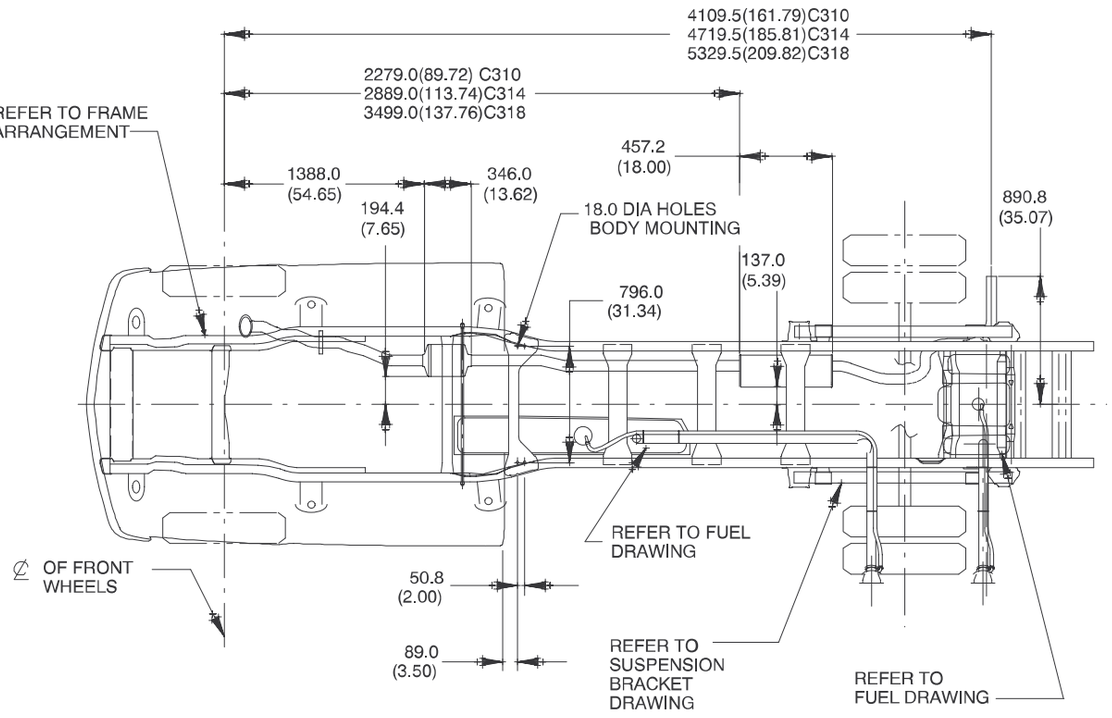
( ) = INCHES

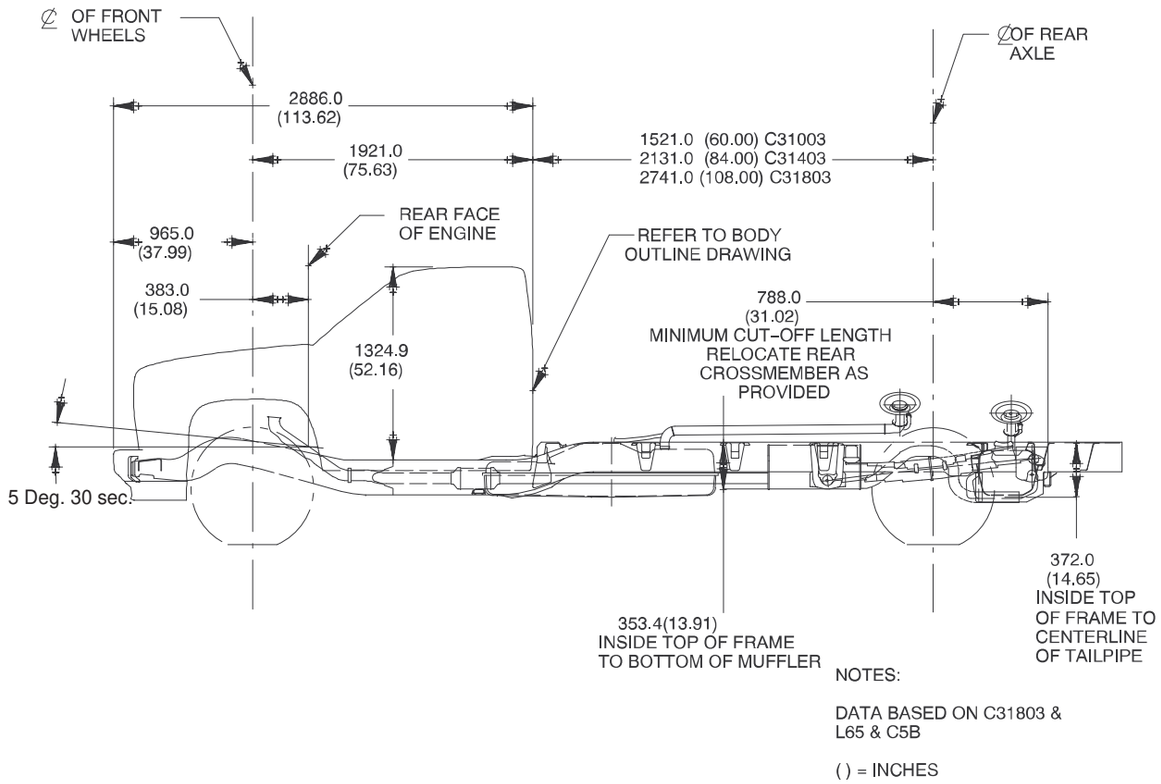
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE TO OUTSIDE
OF METAL.

△ MINIMUM CUT-OFF LENGTH
RELOCATE REAR CROSSMEMBER
AS PROVIDED.

C/K TRUCK (CURRENT)

C (310/314/318)03 Chassis Cab, Regular Cab, 2 Wheel Drive, 15,000 GVWR w/6.5T Diesel Engine



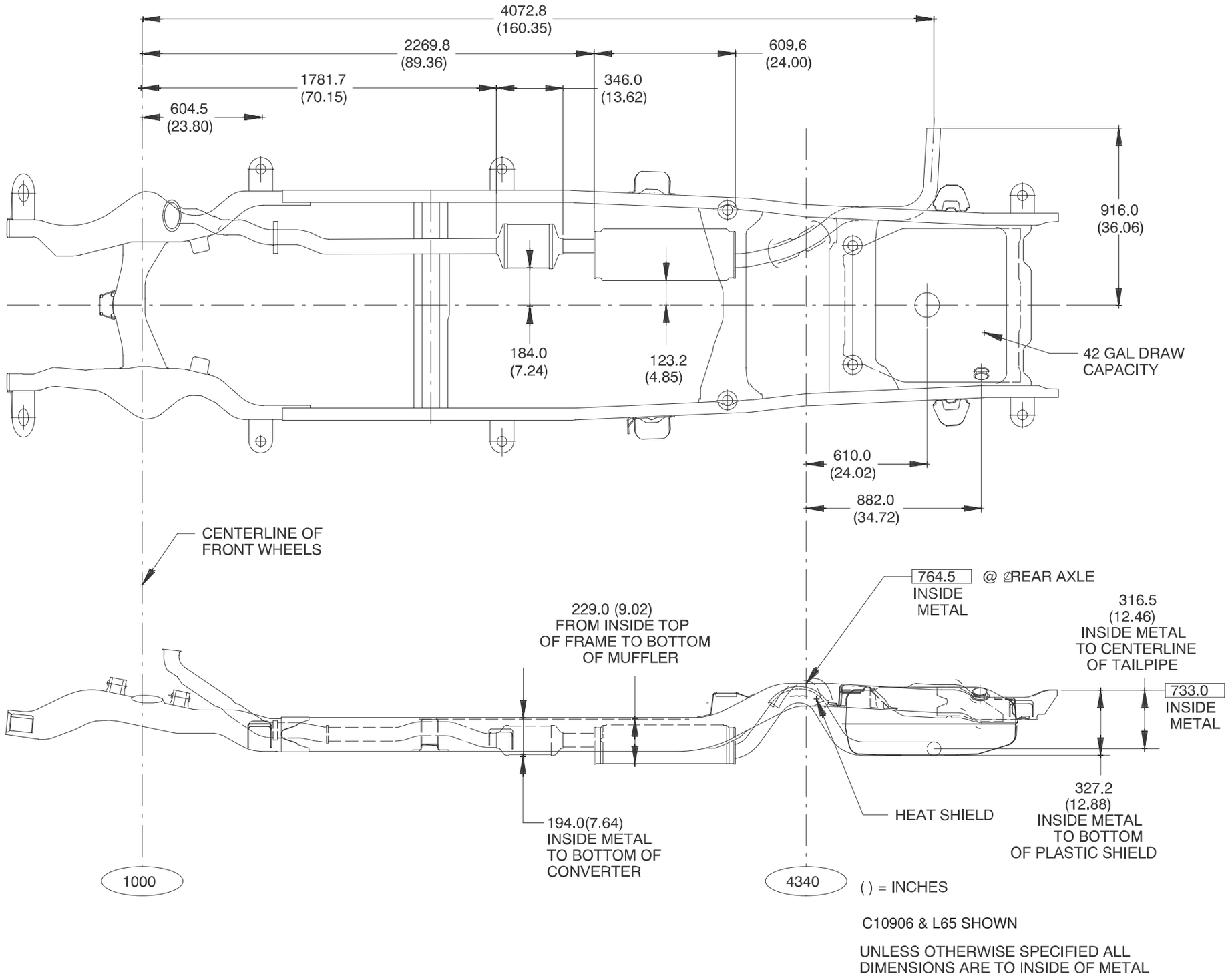


NOTES:

DATA BASED ON C31803 & L65 & C5B

( ) = INCHES

C (109/209)06 Suburban, 2 Wheel Drive w/6.5T Diesel Engine

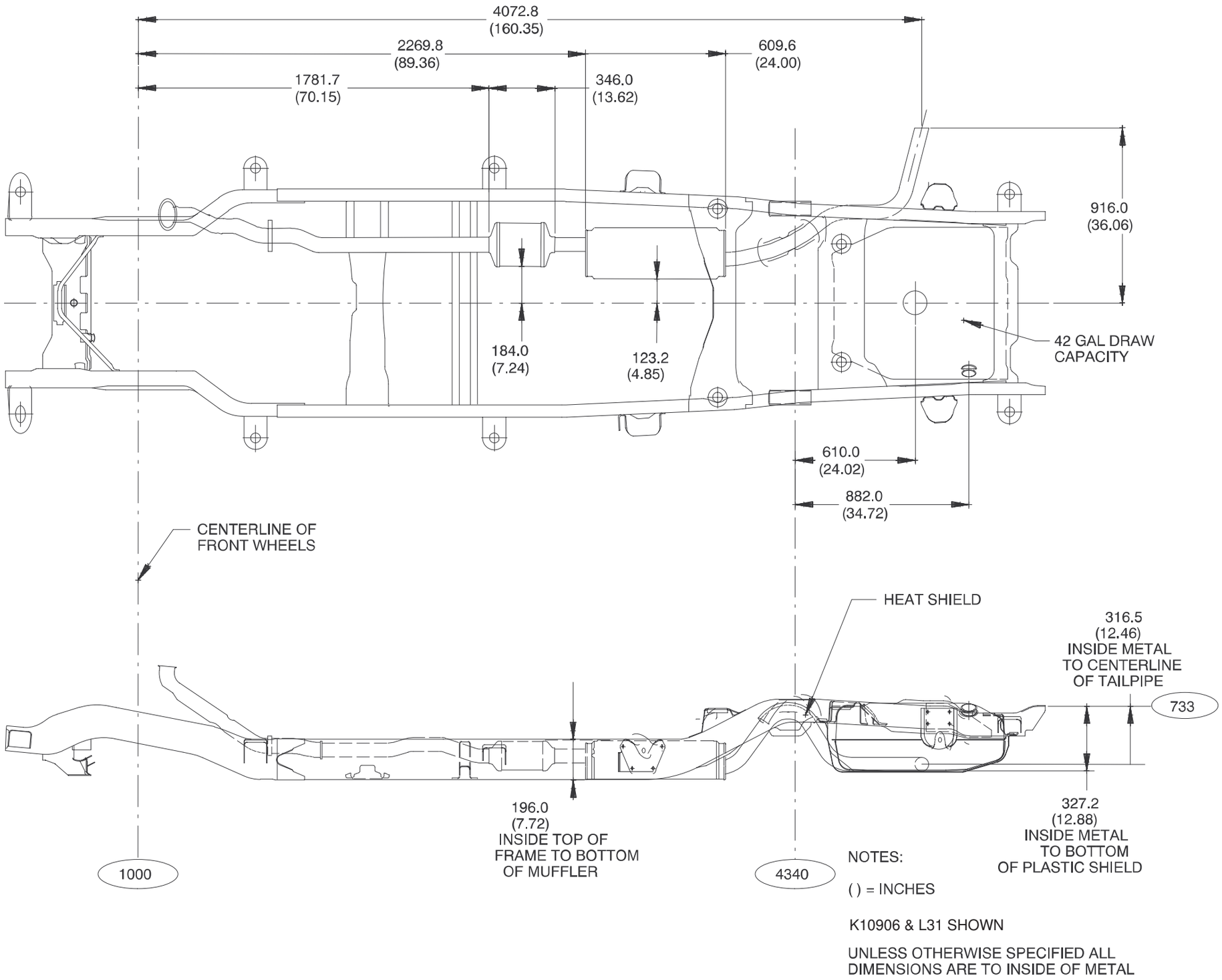


( ) = INCHES

C10906 & L65 SHOWN

UNLESS OTHERWISE SPECIFIED ALL
DIMENSIONS ARE TO INSIDE OF METAL

K (109/209)06 Suburban, 4 Wheel Drive w/6.5T Diesel Engine



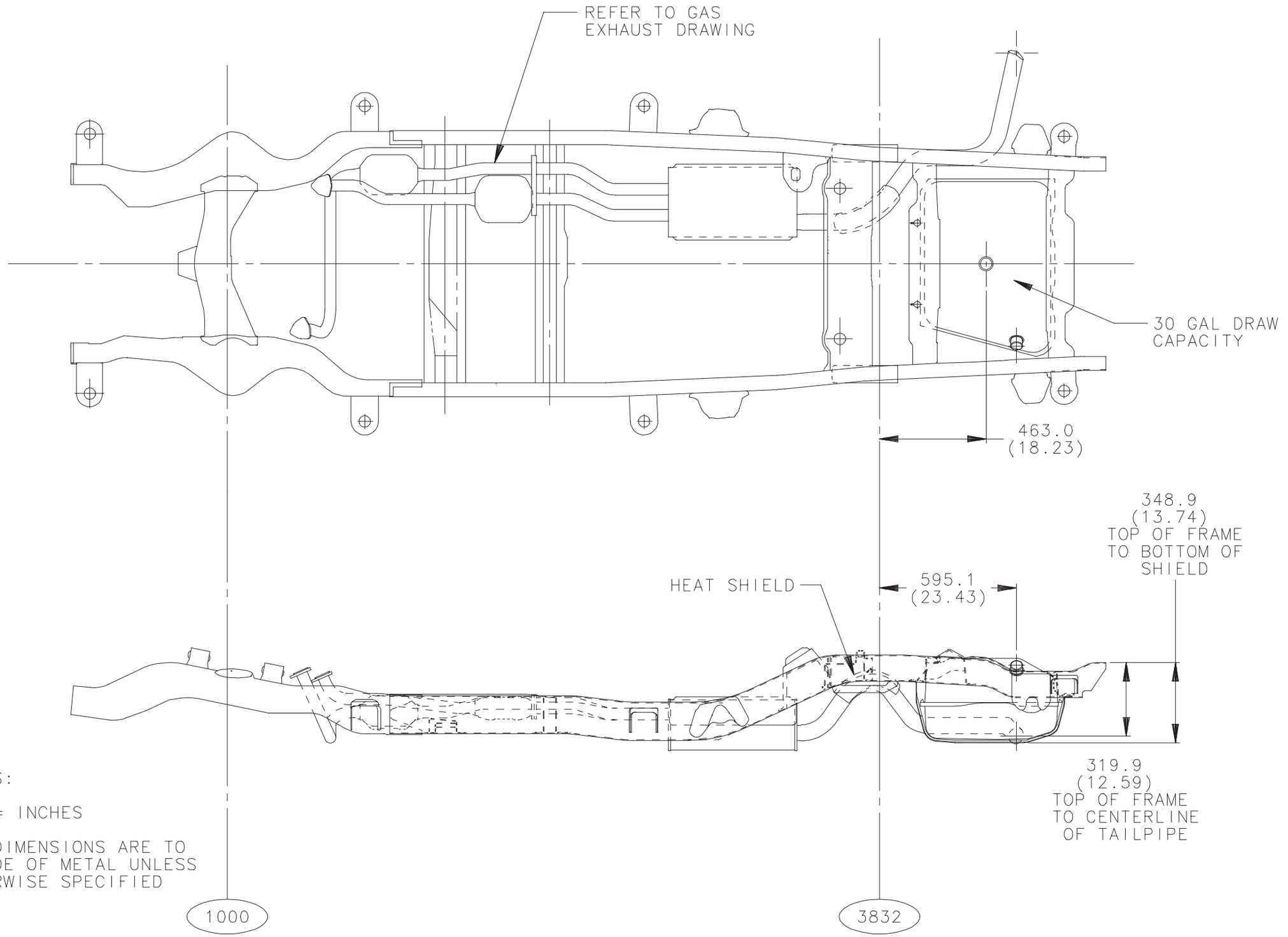
NOTES:

( ) = INCHES

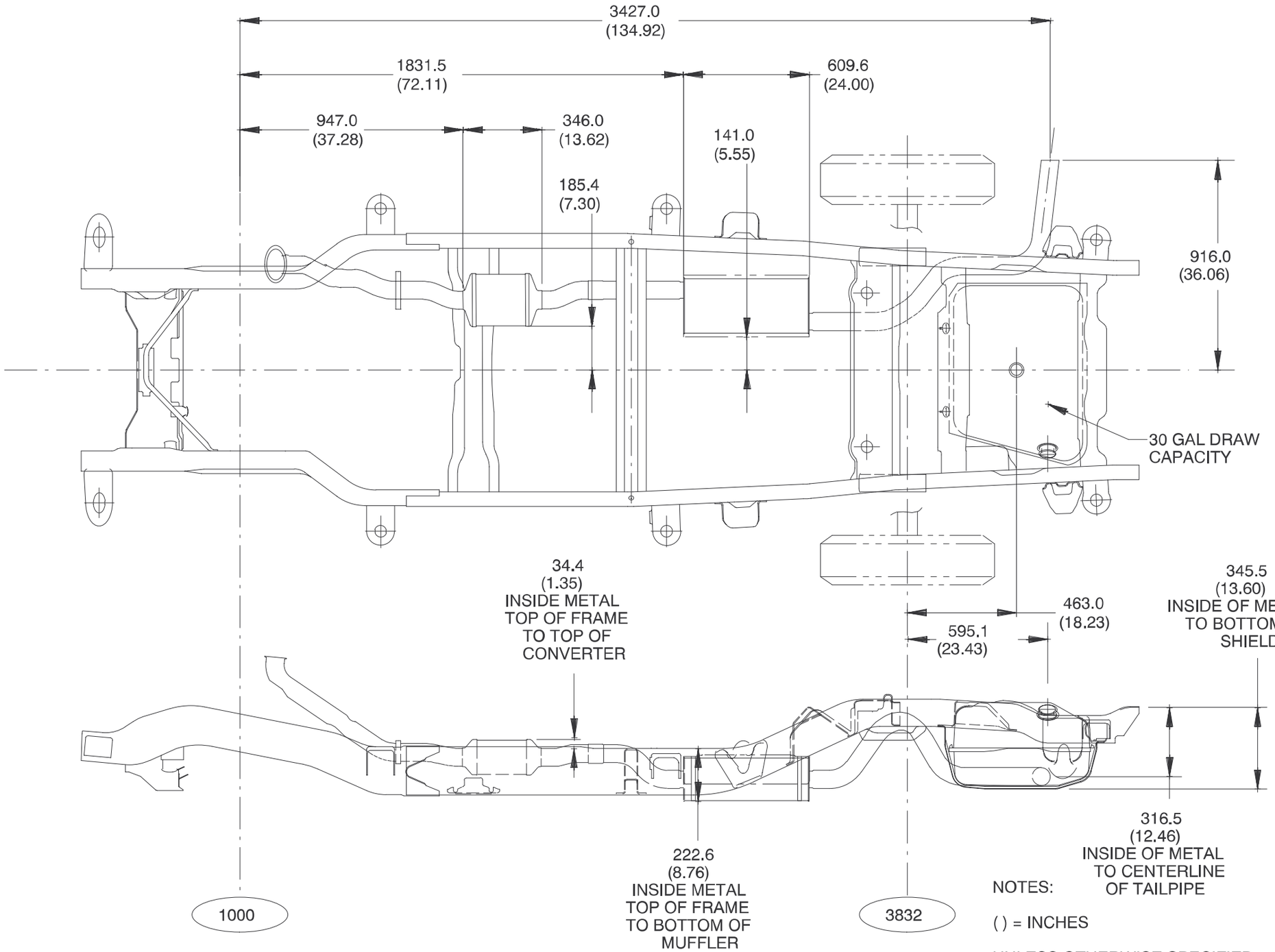
K10906 & L31 SHOWN

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL

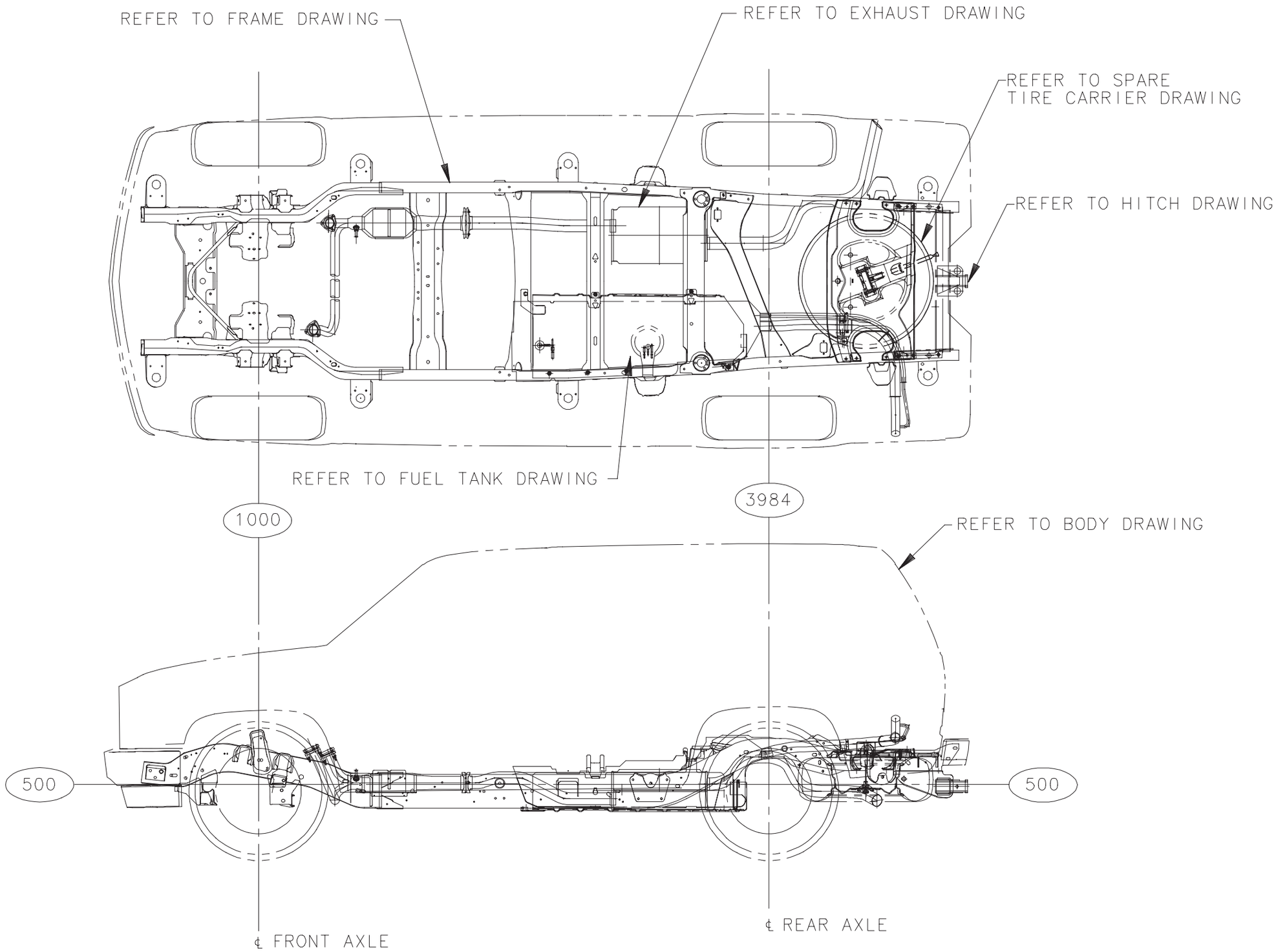
C 10516 Utility, 2 Wheel Drive, 2 Door


REFER TO GAS EXHAUST DRAWING
30 GAL DRAW CAPACITY
463.0 (18.23)
348.9 (13.74) TOP OF FRAME TO BOTTOM OF SHIELD
HEAT SHIELD
595.1 (23.43)
319.9 (12.59) TOP OF FRAME TO CENTERLINE OF TAILPIPE
NOTES:
( ) = INCHES
ALL DIMENSIONS ARE TO INSIDE OF METAL UNLESS OTHERWISE SPECIFIED
1000
3832

K 10516 Utility, 4 Wheel Drive, 2 Door

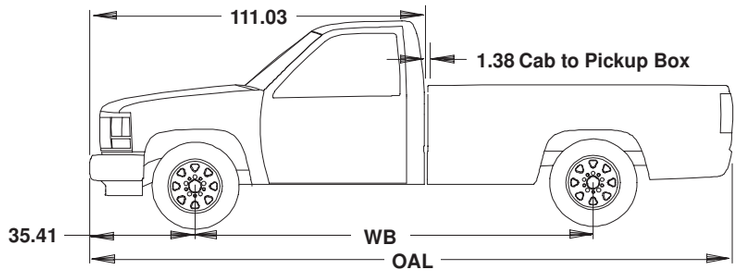


C/K 10706 Utility, 4 Door

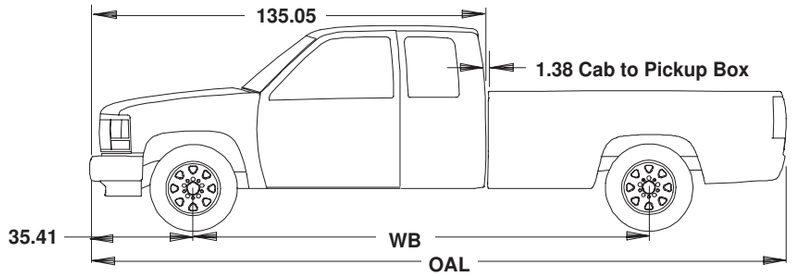


Pickup, Cargo Box Weight Distribution

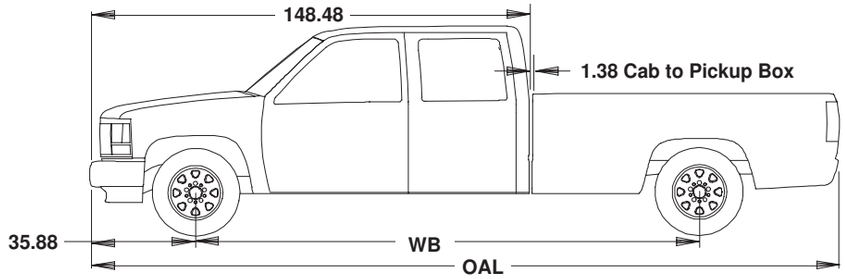
Regular Cab	
WB	**OAL**
117.50	194.52
131.50	213.42



Extended Cab	
WB	**OAL**
141.50	218.54
155.51	237.43

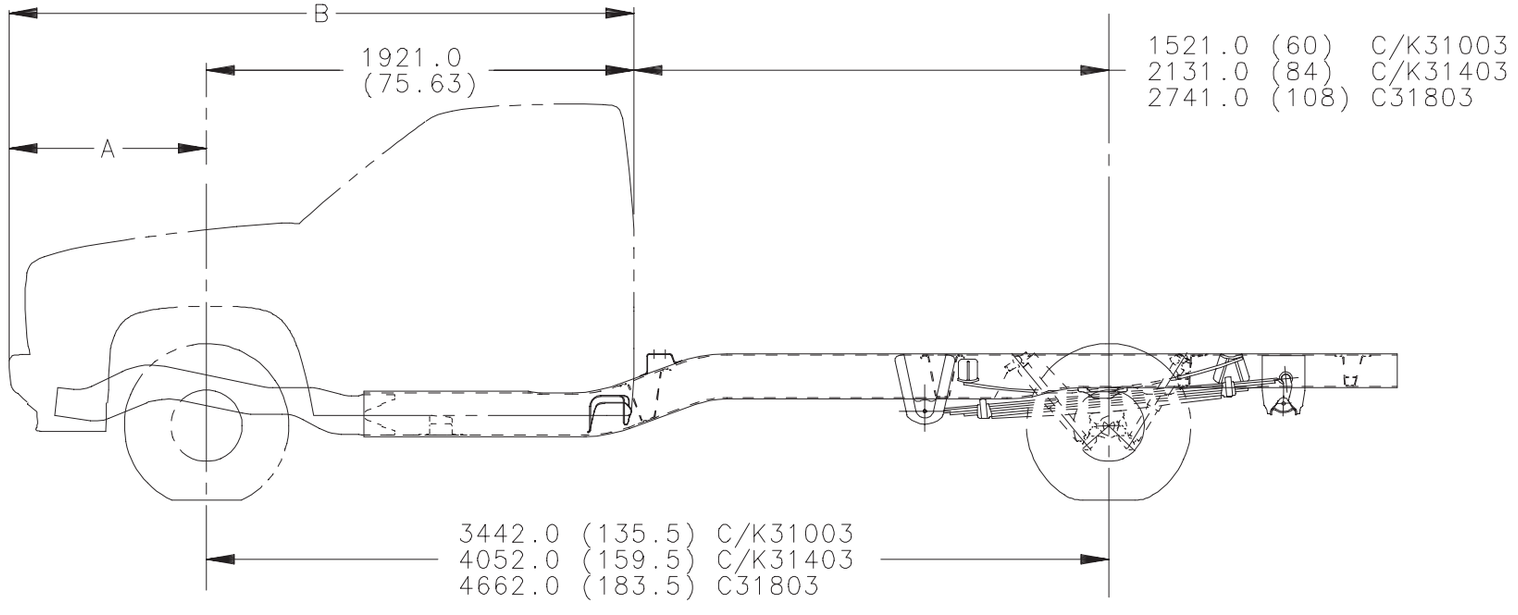


Crew Cab	
WB	**OAL**
168.50	256.30



Model	Wheelbase (in.)	Pickup-Cargo Box Weight Distribution	
		% Front	% Rear
C/K 1500	117.5	1	99
	131.5	5	95
	141.5	1	99
	155.5	4	96
C/K 2500	131.5	5	95
	141.5	1	99
	155.5	4	96
C/K 3500	131.5	5	95
	141.5	1	99
	168.5	4	96

Chassis Cab, Body Cargo Weight Distribution



DIMENSIONS SHOWN ARE NOMINAL
ESTIMATES BASED ON EVEN DISRIBUTION OF WEIGHT
PRECENTAGES ALLOW FOR 3" CB (CAB/BODY CLEARANCE)

$$\frac{CA - CB - (1/2 \times BODY\ LENGHT)}{WB}$$ = PERCENT BODY AND PAYLOAD WEIGHT AT FRONT AXLE

	DIM A	DIM B
10–12000 LB. GVW	899.4 (35.41)	2820.3 (111.03)
15000 LB. GVW	965.0 (37.99)	2886.0 (113.62)

BODY PAYLOAD DISTRIBUTION
REGULAR CAB
% FRONT/REAR

			BODY LENGTHS – FEET								
MODEL	W/B	CA	8	9	10	11	12	13	14	15	16
C/K31003	135.5	60	7/93								
C/K31403	159.5	84			13/87	9/91	6/94				
C31803	183.5	108					18/82	15/85	11/89	8/92	5/95
WITH 24 INCH COMPARTMENT BEHIND CAB											
C/K31403	159.5	84	6/94								
C31803	183.5	108			11/89	8/92	5/95				

Front Mounted Accessories

% Front/Rear Weight Distribution for Equipment Mounted Ahead of Front Axle

Wheel-base	Overhang (Center of Front Axle to the Equipment Center of Gravity)					
	30”	36”	42”	48”	54”	60”
117.5	125/–25	131/–31	138/–38	141/–41	146/–46	151/–51
131.5	123/–23	127/–27	132/–32	137/–37	141/–41	146/–46
135.5	122/–22	127/–27	131/–31	135/–35	140/–40	144/–44
141.5	121/–21	125/–25	130/–30	134/–34	138/–38	142/–42
155.5	119/–19	123/–23	127/–27	131/–31	135/–35	139/–39
159.5	119/–19	123/–23	126/–26	130/–30	134/–34	138/–38
183.5	116/–16	120/–20	123/–23	126/–26	129/–29	133/–33

Example:

When mounting equipment with the center of gravity 30 inches ahead of the front axle centerline on a truck with 131.5 wheelbase, the chart indicates the front/rear percentages to be 123/–23. If the front mounted accessory weighs 150 lbs. the front axle is equal to 150x1.23, or the weight is decreased by 23% (or 150x0.23), which equals –33 lbs. In effect, the weight on the front axle is increased by the weight of the equipment and payload plus the weight transferred from the rear.

Rear Mounted Accessories

% Front/Rear Weight Distribution for Equipment Mounted Behind Rear Axle

Wheel-base	Overhang (Center of Rear Axle to the Equipment Center of Gravity)					
	30”	36”	42”	48”	54”	60”
117.5	–25/125	–31/131	–38/138	–41/141	–46/146	–51/151
131.5	–23/123	–27/127	–32/132	–37/137	–41/141	–46/146
135.5	–22/122	–27/127	–31/131	–35/135	–40/140	–44/144
141.5	–21/121	–25/125	–30/130	–34/134	–38/138	–42/142
155.5	–19/119	–23/123	–27/127	–31/131	–35/135	–39/139
159.5	–19/119	–23/123	–26/126	–30/130	–34/134	–38/138
183.5	–16/116	–20/120	–23/123	–26/126	–29/129	–33/133

Example:

When mounting an item of equipment with the center of gravity 48 inches behind the center of rear axle on a truck with a wheelbase of 159.5 inches, the chart shows the front/rear percentage to be –30/130. If the tailgate weighs 600 lbs. 3.32 (30%) times 600 lbs. equals minus –180 lbs. Mounting the liftgate makes the front axle 180 lbs. lighter. The rear axle weight is increased by 1.30 (130%) times 600 lbs. equals 780 lbs. In effect, 180 lbs. are transferred from the front to the rear axle and the weight is increased by the transferred weight plus the weight of the tailgate, or 780 lbs.

Chassis Cab Payload Weight Distribution

C/K Crew Cab Chassis Cab (%Front/Rear)

Model No.	Dimensions (IN)				Body Lengths – FT.			
	WB	CA	CE	OL	5	6	7	8
C 30943	168.5	55.9	97.0	249.6	14/86	10/90	6/94	3/97
C 30943 w/R05	168.5	55.9	97.0	249.6	14/86	10/90	6/94	3/97
K 30943	168.5	55.9	97.0	249.6	14/86	10/90	6/94	3/97
K 30943 W/R05	168.5	55.9	97.0	249.6	14/86	10/90	6/94	3/97

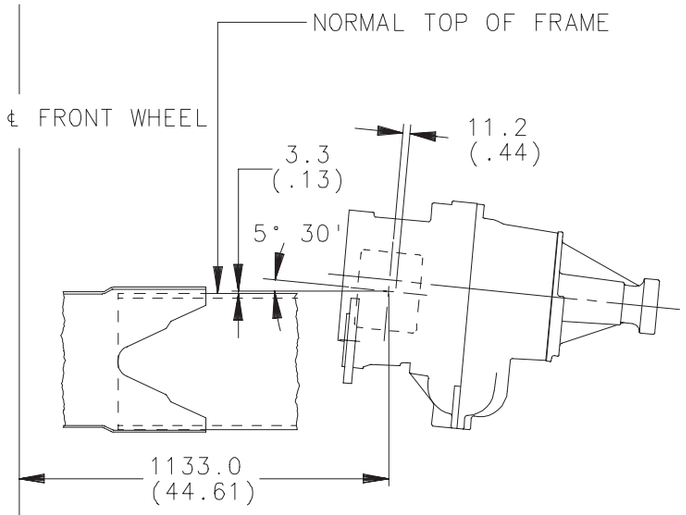
C/K Chassis Cab (%Front/Rear)

Model No.	Dimensions (IN)				Body Lengths – FT.			
	WB	CA	CE	OL	6	8	10	12
C 20903	131.5	55.9	97.6	208.2	13/87	4/96		
C 30903	131.5	55.9	97.6	208.2	13/87	4/96		
C 31003	135.5	60.0	110.9	221.5	15/85	7/93		
C 31403	159.5	84.0	135.0	245.5	28/72	21/79	13/87	6/94
K 20903	131.5	55.9	97.6	208.2	13/87	4/96		
K 30903	131.5	55.9	97.6	208.2	13/87	4/96		
K 31003	135.5	60.0	110.9	221.5	15/85	7/93		
K 31403	159.5	84.0	135.0	245.5	28/72	21/79	13/87	6/94

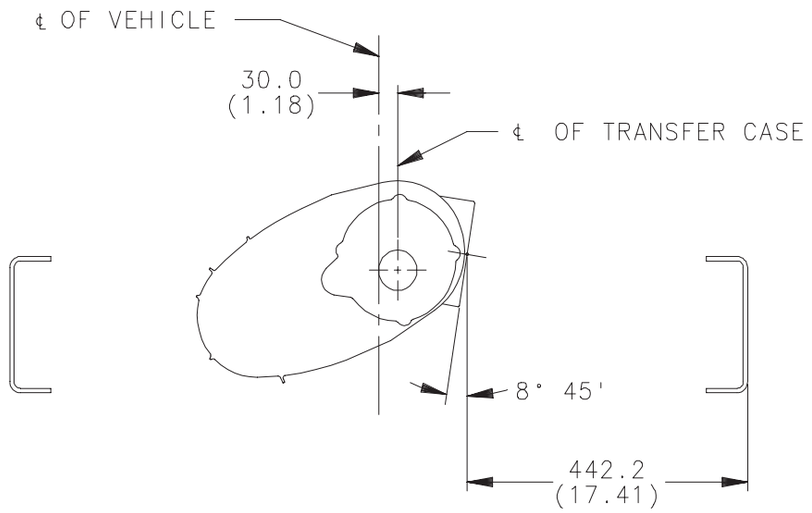
C/K 3500 HD Chassis Cab (%Front/Rear)

Model No.	Dimensions (IN)				Body Lengths – FT.						
	WB	CA	CE	OL	8	9	10	12	14	15	16
C 31003	135.5	60	111	224.1	7/93	3/97					
C 31403	159.5	84	135	248.1		17/83	13/87	6/94			
C 31803	183.5	108	159	272.1				18/82	11/89	8/92	5/95

K 35000 Power Take Off (PTO) Transfer Case



SIDE VIEW



REAR VIEW

1000

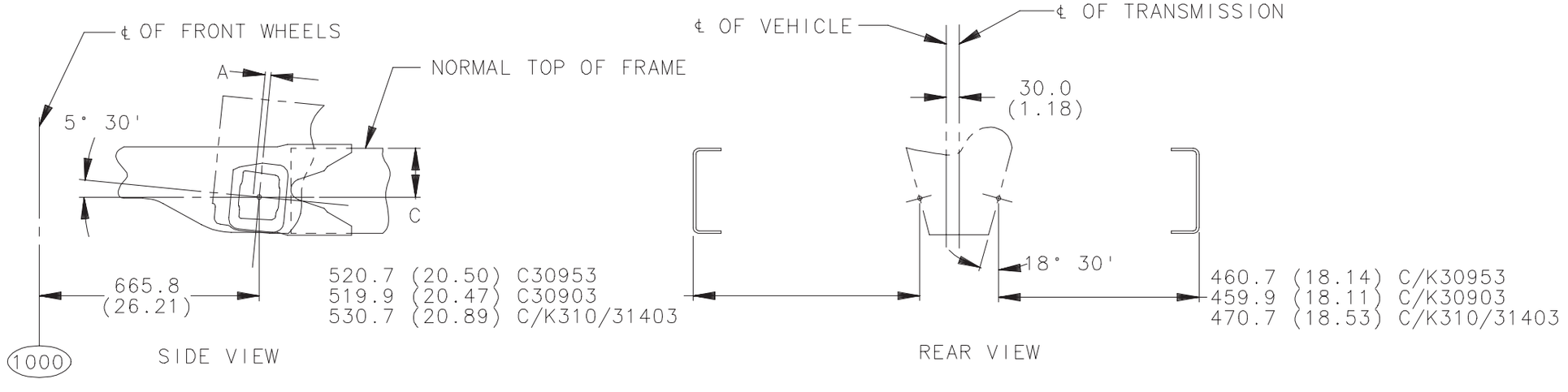
TABLE OF TRANSFER CASE POWER TAKE-OFF DATA-PTO, DRIVE GEAR							
TRANSFER CASE	SAE PTO OPENING	NUMBER OF TEETH	NORMAL PITCH	PITCH DIAMETER	ANGLE & HAND OF HELIX	NORMAL PRESSURE ANGLE	REDUCTION AT PTO DRIVE GEAR
BORG WARNER 1370 (4401)	6 BOLT RH	57	243.9578 (9.6046)	162.1246 (6.3829)	21.6° LH	20°	1.0
BORG WARNER 4470	6 BOLT RH	57	243.9578 (9.6046)	162.1246 (6.3829)	21.6° LH	20°	1.0

TRANSFER CASE PTO AVAILABLE WITH RPO R05 ONLY

TRANSFER CASE	PTO GEAR 1000 RPM INPUT TO TRANS	PITCH LINE VELOCITY OF PTO @ 1000 RPM INPUT FT/MIN	PTO MOUNTED ON SHAFT	DISTANCE FROM PAD TO CENTERLINE OF GEAR	DISTANCE FROM PAD TO PITCH LINE OF GEAR	DIRECTION OF ROTATION
BORG WARNER 1370 (4401)	1000	1671	INPUT	109.202 (4.2993)	28.14 (1.108)	SAME AS ENGINE
BORG WARNER 4470	1000	1671	INPUT	109.202 (4.2993)	28.14 (1.108)	SAME AS ENGINE

C/K 309(03/53) & C/K (310/314)03 Power Take Off (PTO) Transmission

POWER TAKE-OFF OPENING LOCATION
TRANSMISSION MW3



PTO INSTALLATION NOTICE

GM NV4500 MANUAL, 5 SPEED TRANSMISSIONS HAVE BEEN FACTORY FILLED WITH SYNTHETIC GEAR LUBE.

WHEN THESE TRANSMISSIONS ARE DRAINED FOR PTO INSTALLATION,THEY MUST BE REFILLED WITH CASTROL SYNTORQ LT SYNTHETIC GEAR LUBE, GM PART NUMBER 12346190 QT
12346191 GAL
12547885 BULK

(LUBE CAPACITY 8.5 PINTS)

MW3 TRANSMISSION RATIOS	
REVERSE	5.61
FIRST	5.61
SECOND	3.04
THIRD	1.67
FOURTH	1.00
FIFTH	0.75

SERIES	C
C20903 & C6P C30903	96.9 (3.81)
C20953 & C6P C30953	97.7 (3.85)
K20903 & C6P K30903	63.9 (2.52)
K20953 & C6P K30953	64.7 (2.55)
C31003 - C5B C31403 - C5B	98.1 (3.86)
K31003 - C5B K31403 - C5B	65.1 (2.56)

( ) = INCHES

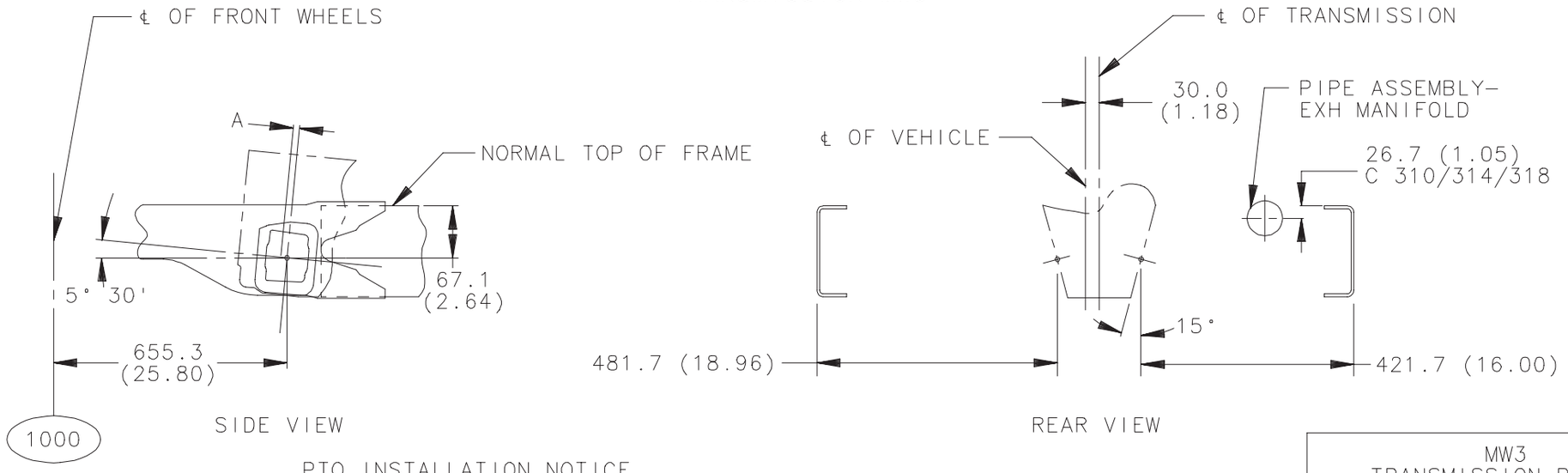
TABLE OF POWER TAKE-OFF DATA-PTO, DRIVE GEARS

TRANSMISSION MODEL	SAE PTO OPENING	NUMBER OF TEETH	NORMAL PITCH	PITCH DIAMETER	ANGLE & HAND OF HELIX	NORMAL PRESSURE ANGLE	REDUCTION AT PTO DRIVE GEAR
MW3-5 SPEED	6 BOLT LH & RH	30	(7.9366)	(4.3647)	30° RH	22.4987	.579

PTO GEAR 1000 RPM INPUT TO TRANS	PITCH LINE VELOCITY OF PTO @ 1000 RPM INPUT FT/MIN	DISTANCE OF GEAR FACE FROM CENTERLINE OF OPENING DIM A	PTO MOUNTED ON SHAFT	DISTANCE FROM PAD TO CENTERLINE OF GEAR	⊥ DISTANCE FROM OUTSIDE SURFACE OF CASE (MACHINED SURFACE) TO PITCH LINE OF GEAR	DIRECTION OF ROTATION
579	675	12.40 (0.488) FORWARD	COUNTER	83.7184 (3.296)	(1.1137)	OPPOSITE ENGINE

C (310/314/318)03 Power Take Off (PTO) Transmission

POWER TAKE-OFF OPENING LOCATION
TRANSMISSION MW3



PTO INSTALLATION NOTICE

GM NV4500 MANUAL, 5 SPEED TRANSMISSIONS HAVE BEEN FACTORY FILLED WITH SYNTHETIC GEAR LUBE.

WHEN THESE TRANSMISSIONS ARE DRAINED FOR PTO INSTALLATION.THEY MUST BE REFILLED WITH CASTROL SYNTORQ LT SYNTHETIC GEAR LUBE, GM PART NUMBER 12346190 QT
12346191 GAL
12547885 BULK
(LUBE CAPACITY 8.5 PT)

MW3 TRANSMISSION RATIOS	
REVERSE	5.61
FIRST	5.61
SECOND	3.04
THIRD	1.67
FOURTH	1.00
FIFTH	0.75

TABLE OF POWER TAKE-OFF DATA-PTO, DRIVE GEARS

TRANSMISSION MODEL	SAE PTO OPENING	NUMBER OF TEETH	NORMAL PITCH	PITCH DIAMETER	ANGLE & HAND OF HELIX	NORMAL PRESSURE ANGLE	REDUCTION AT PTO DRIVE GEAR
MW3-5 SPEED	6 BOLT LH & RH	30	(7.9366)	(4.3647)	30° RH	22.4987	.579

PTO GEAR 1000 RPM INPUT TO TRANS	PITCH LINE VELOCITY OF PTO @ 1000 RPM INPUT FT/MIN	DISTANCE OF GEAR FACE FROM CENTERLINE OF OPENING DIM A	PTO MOUNTED ON SHAFT	DISTANCE FROM PAD TO CENTERLINE OF GEAR	⊥ DISTANCE FROM OUTSIDE SURFACE OF CASE (MACHINED SURFACE) TO PITCH LINE OF GEAR	DIRECTION OF ROTATION
579	675	12.40 (0488) FORWARD	COUNTER	83.7184 (3.296)	(1.1137)	OPPOSITE ENGINE

NOTE:

( ) = INCHES

SNOWPLOW INSTALLATION

Model Availability, Recommended Procedures and Guidelines

The chart on the following page shows GMTG approved models available with snow plow prep package–option VYU.

The following models produced by General Motors Truck Group are not recommended for snowplow application:

- K Series–4x4-2 door and 4 door utilities (Tahoe/Yukon)
- K Series–4x4-Suburbans and Crew Cab Pickups

General Motors recommends that when a snowplow is mounted on a vehicle, only one passenger should accompany the driver. More than one passenger may exceed Front Gross Axle Weight Ratings.

Prior to installing a front mounted snowplow, the following process should be followed and necessary information obtained.

- Establish vehicle curb weight
- Establish chassis manufacturers front and rear axle weight ratings
- Chevrolet and GMC truck dealers can provide availability, specifications, weights, Gross Vehicle Weight Ratings (GVWR) and Front and Rear Gross Axle Ratings (GAWRF/GAWRR). (For vehicles already built, this information can be found on the certification label installed on drivers door/door frame or provided on cover of incomplete vehicle document).

The following information should be obtained and provided by the manufacturers of snowplows and salt spreaders:

- Specifications, weights and center of gravity data
- Vehicle installation guidelines and instructions
- Calculation of weight distribution for the front and rear axles

The loaded vehicle with driver, passengers, aftermarket accessories, snowplows, spreader, and cargo must not exceed Gross Vehicle Weight Rating (GVWR), Front and Rear Gross Axle Weight Ratings.

Ballast Compensating Weight

The use of ballast weight may be required to prevent exceeding the Gross Axle Weight Rating of the front axle. Ballast should be securely attached in the pickup box or behind the rear axle of vehicle.

1999 Snowplow Prep Package-Option VYU

GMTG: Chevrolet/GMC

		Pickups					Chassis Cabs			
Model		K20753	K20903	K20953	K30903	K30953	K20903	K30903	K31003	K31403
Cab		Extended	Regular	Extended	Regular	Extended	Regular	Regular	Regular	Regular
Wheelbase		141.5	131.5	155.5	131.5	155.5	131.5	131.5	135.5	159.5
Pickup Box Length		6.5	8	8	8	8				
GVWR		8600	8600	8600	9200	9200	8600	9200	12000	12000
GAWR-Frt.		4500	4500	4500	4500	4500	4500	4500	4500	4500
Engine Availability with VYU	**Opt. Code**									
Gas-V8 (350 CID) Vortec 5700	L31	B	B	B	B	B	B	B	B	B
Gas-V8 (454 CID) Vortec 7400	L29	N/A	A	N/A	N/A	N/A	A	A	A	A
Diesel-V8 (395 CID) 6.5T	L65	N/A	A	N/A	N/A	N/A	A	A	A	A

C/K Truck (Current)

		Pickups					Chassis Cabs			
Model		K20753	K20903	K20953	K30903	K30953	K20903	K30903	K31003	K31403
Cab		Extended	Regular	Extended	Regular	Extended	Regular	Regular	Regular	Regular
Wheelbase		141.5	131.5	155.5	131.5	155.5	131.5	131.5	135.5	159.5
Pickup Box Length		6.5	8	8	8	8				
GVWR		8600	8600	8600	9200	9200	8600	9200	12000	12000
GAWR-Frt.		4500	4500	4500	4500	4500	4500	4500	4500	4500
	Opt. Code									
Base (B) Equipment Includes:										
Tow Hooks	V76	B	B	B	B	B	B	B	B	B
Dual Cranking Batteries-600 CCA (L65)		N/A	B	N/A	N/A	N/A	B	B	B	B
Alternator-105 AMP (L65)		N/A	B	N/A	N/A	N/A	B	B	B	B
Engine Oil Cooler (Air to Oil L65 Only)		N/A	B	N/A	N/A	N/A	B	B	B	B
Battery 600 CCA		B	B	B	B	B	B	B	B	B
Aux. HD Trans. Cooler (Auto. Only)	KNP	B	B	B	B	B	B	B	B	B
Engine Oil Cooler (Water to Oil Gas Only)		B	B	B	B	B	B	B	B	B
Alternator 105 Amps		B	B	B	B	B	B	B	B	B
HD Heater Blower		B	B	B	B	B	B	B	B	B
Snowplow Prep Package Includes:	VYU									
HD Front. Springs & Torsion Bars & Adj.	F60	X	X	X	X	X	X	X	X	X
HD Power Steering Cooler	*	X	X	X	S	S	X	S	S	S
Suggested Optional Equipment										
Alternator 140 Amps	8A5	A	A	A	A	A	A	A	A	A
Locking Differential	G80	A	A	A	A	A	A	A	A	A
Battery 770 CCA Not Available with L65	7Y9	A	A	A	A	A	A	A	A	A
Cold Climate Package (Incls. Enging Block Heater)	V10	A	A	A	A	A	A	A	A	A
Dual Alternators 100 Amps (L65 Only)	8Z4	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Rear Window Defogger	C49	A	N/A	A	N/A	A	N/A	N/A	N/A	N/A
Skid Plates	NZZ	A	A	A	A	A	A	A	A	A
Sliding Rear Window Not Available with C49	A28	A	A	A	A	A	A	A	A	A
Cabs Marker Lamps	U01	A	A	A	A/S 1)	A/S 1)	A	A/S 1)	S	S
HD Rubber Mats	BG9	A	A	A	A	A	A	A	A	A

* – HD power steering cooler is standard on K2500 series with option code L29 (7.4L gas) or option code L65 (6.5T Diesel) engines.

A – Available / B-Base / S-Standard / X-Included / 1)-Included with R05 Dual rear wheels

The K2500 and K3500 series vehicles with GVWR's of 8600 lbs. or above will have increased Front GAWR from 4250 lbs. to 4500 lbs.

PICKUP BOX REMOVAL PROGRAM

The following information is for vehicle alterers who intend to remove Pickup boxes from C/K Trucks and install second unit bodies on these vehicle. This information applies only to those vehicles which have a Gross Vehicle Weight Rating (GVWR) of 6100 lbs. up to and including 10,000 lbs. (Vehicles listed in Table 'A')

Alterations To Completed Vehicles

Persons who alter complete (certified) Pickup Trucks by removal of the Pickup box should be aware that this type of activity would impose upon them the corresponding responsibility for ensuring that the units as sold are in compliance with all applicable safety and/or emissions (including noise and RFI) requirements. Specific questions concerning compliance or certification to these requirements should be directed to the vehicle alterer's legal counsel or the National Highway Traffic Safety Administration, The Environmental Protection Agency, The California Air Resources Board, or, in Canada, The Ministry of Transport or The Canadian Department of Commerce.

The Environmental Protection Agency has provided an explanation of the policy they will follow regarding the modification by the secondary manufacturers of complete Light Duty Trucks prior to sale and delivery to the ultimate purchaser. This explanation is contained in a letter from C. N. Freed of the EPA to M. M. McBride of the Recreation Vehicle Industry Association, dated July 13, 1979. A portion of this letter states:

"...secondary manufacturers are not manufacturers under the act when the following conditions are met:

1. The vehicles produced by a secondary manufacturer conform in all material respects to the design specification in the original manufacturer's application for certification (hereafter 'application'); and

2. The weight of the vehicles produced by a secondary manufacturer, including the weight of fuel at nominal tank capacity, is no more than 500 lbs. above the maximum vehicle weight."

No frontal area restrictions will apply to secondary manufacturers who comply with the conditions above. However, every vehicle sold to an ultimate purchaser must be covered by the Emission warranty mandated by Section 270(a) of the Act. Secondary manufacturers who do not meet the above conditions will be considered manufacturers under the Act and will be required to ensure that the vehicles they produce are covered by a certificate of conformity.

The maximum vehicle weight for a given vehicle is determined by:

A. Subtracting 300 lbs. from the highest loaded vehicle weight (see 40 CFR 86.079-2 for loaded vehicle weight definition and the table at 40 CFR 86.129-80) associated with the test weight listed in the application for the vehicle in question, and

B. Adding the weight of all options that are offered by the original manufacturer for the applicable truck line that were not included in the curb weight reported in the application.

In the case of mutually exclusive options, only the weight of the heavier option is to be used when computing the maximum vehicle weight.

Some original manufacturers provide their sales organizations with a "Data Book" that lists the curb weights of complete Light Duty Trucks equipped with standard equipment (not including the weight of any optional equipment). The "Data Book" also describes the options (including their weight) the original manufacturer offers. A secondary manufacturer may use the "Data Book" curb weight and option weights to determine the maximum vehicle weight for a given vehicle by adding the weight of every option offered by the original manufacturer for the vehicle to the curb weight in the "Data Book". In the case of mutually exclusive options, only the weight of the heavier option is to be added to the "Data Book" curb weight. The weight of optional engines, transmission and emission control systems is added to the "Data Book" weight only when the vehicle in question actually contains these options.

Those who wish to remove the Pickup box from a Pickup Truck for the purpose of installing special equipment or another type of body should be further advised that a Pickup may require modification in one of the following areas. Before a decision is made to alter a C/K Pickup Model, please be advised of the following considerations:

Vehicle:

Analyze the vehicle specification for product content. The option content of a particular vehicle will determine which, if any, of the four areas of modification might not be applicable to the vehicle alteration contemplated.

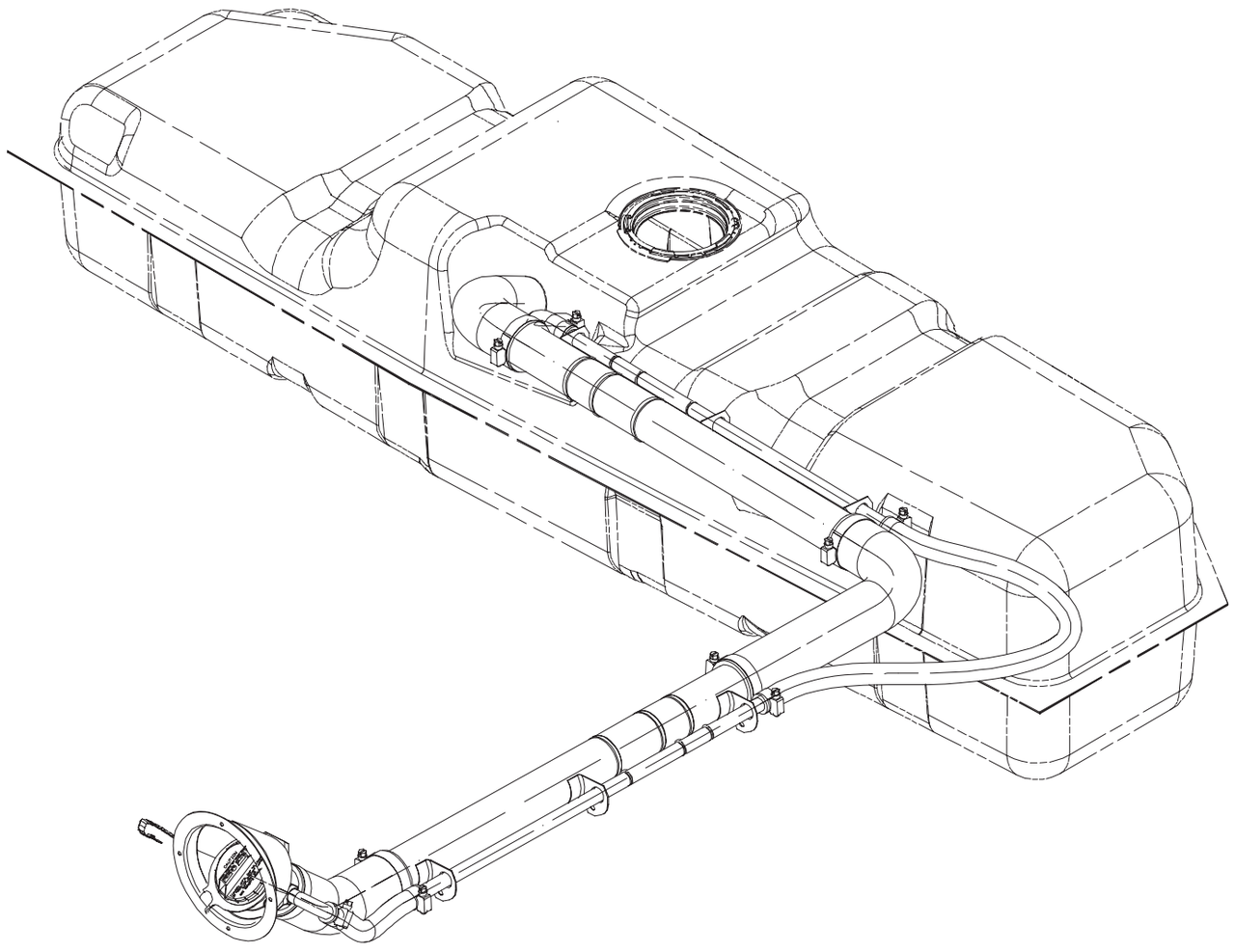
Service Parts:

The service parts and related service part numbers as outlined in the four areas of modification may be ordered throughout your local Chevrolet/GMC Dealer. Contact your Dealer's Service Parts Representative for availability and price.

Areas of Modification

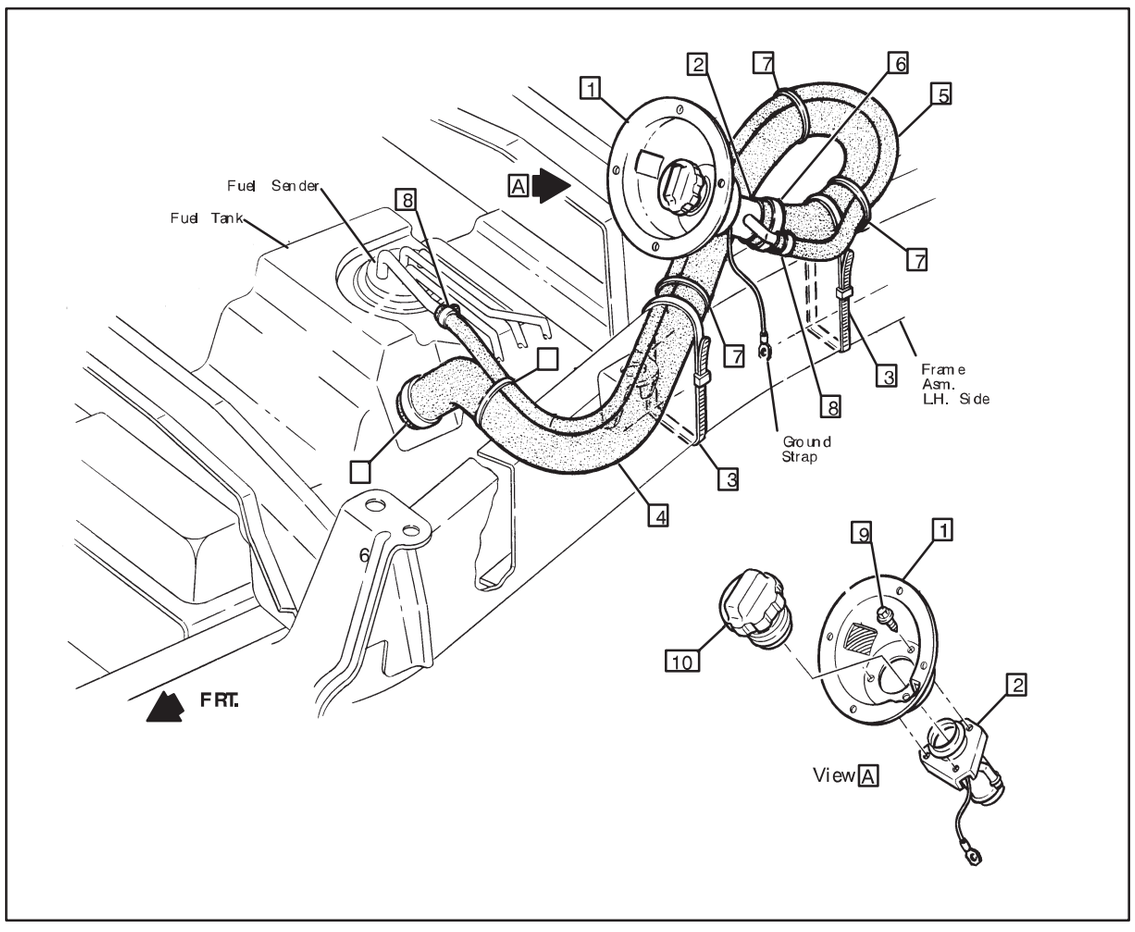
1. Fuel filler neck assembly and housing.
2. Tail lamp, tail lamp wiring harness and license plate bracket assembly.
3. Fuel tank filler pipe ground strap.
4. Spare tire mounting.

Fuel Tank Filler Neck (Gasoline)



Items	Part Description	Part Number	Quantity
1	Pipe Asm–L29/L30/L31/L35 without RPO NM8	15728448	1
1	Pipe Asm–L29/L30/L31/L35 with RPO NM8	15156558	1
2	Band (TY Wrap)	790992	1
3	Clamp	3817244	1
4	Clamp	2464901	1

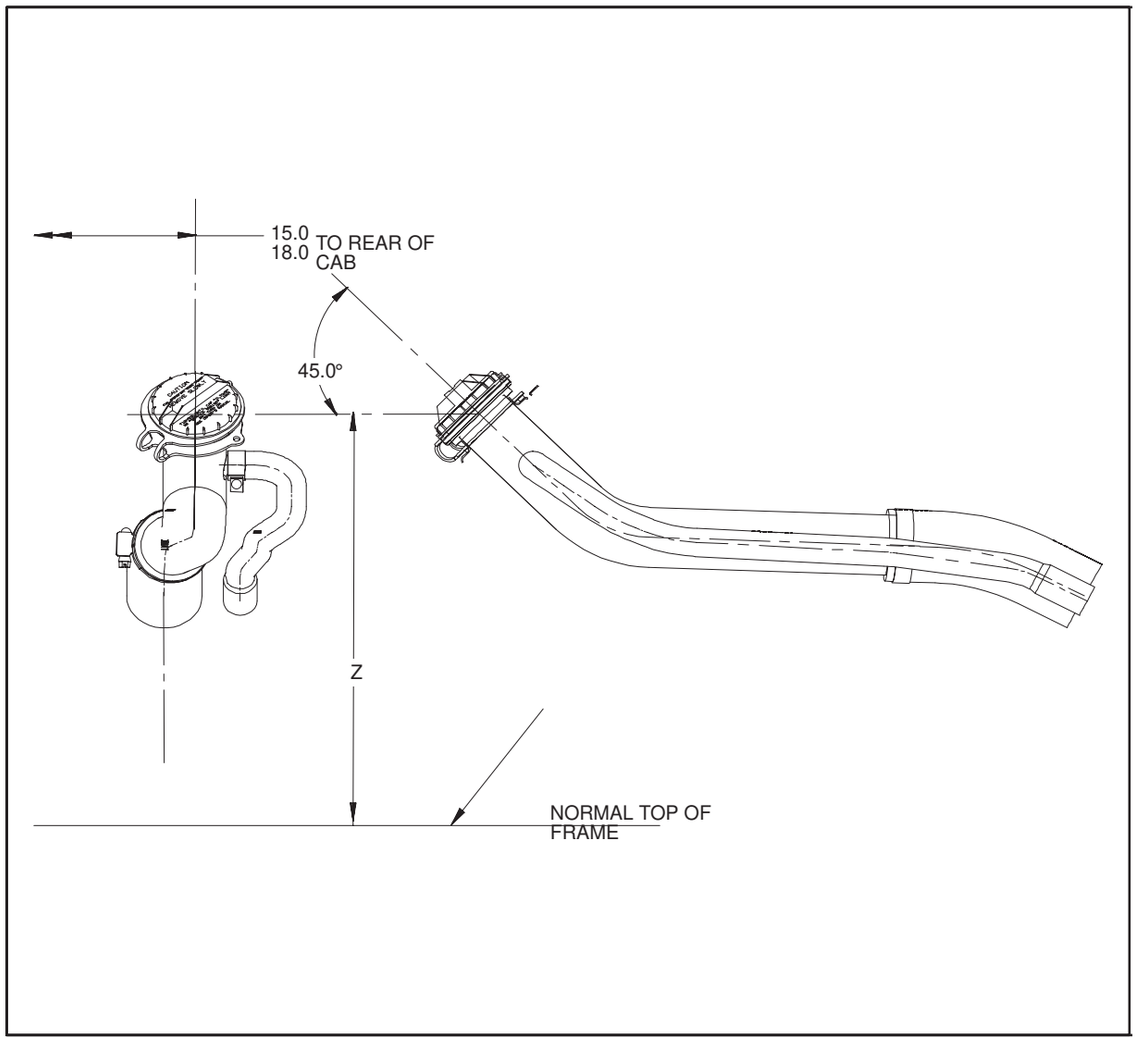
Fuel Tank Filler Neck (Diesel)



Items	Part Description	Part Number	Quantity
1	Housing -Fuel Tank Upper	15629096	
2	Pipe Asm -with Engines L56/L65 without RPO NM8	15640372	1
3	Band	790992	2
4	Hose -Fuel Tank Filler	15640379	1
5	Hose -Fuel Tank Vent	15640380	1
6	Clamp	3817244	2
7	Strap	15560979	6
8	Clamp	2464901	4
9	Bolt/Screw	11514546	3
10	Cap Asm	15671703	1

C/K Truck (Current)

The following dimensions and diagrams should be followed when using the original fuel fill and vent system that was installed on the vehicle. If the replacement fuel fill and vent system, which is available from your Chevrolet/GMC Dealer, is used, see the fuel fill system modifications on pages 39-40.



Recommended Fuel Fill Access Zone

Model	Z
C 100-200-300	10.50 11.50
K 100-200-300	12.00 13.00

NOTE: Body Builder to trim fuel filler and vent hose to desired length. Fuel and vent line must maintain a downward flow to fuel tank. Hose must be installed so that no fuel may be trapped.

Fuel Fill System Modifications–Connector & Label (Diesel Vehicles Only)

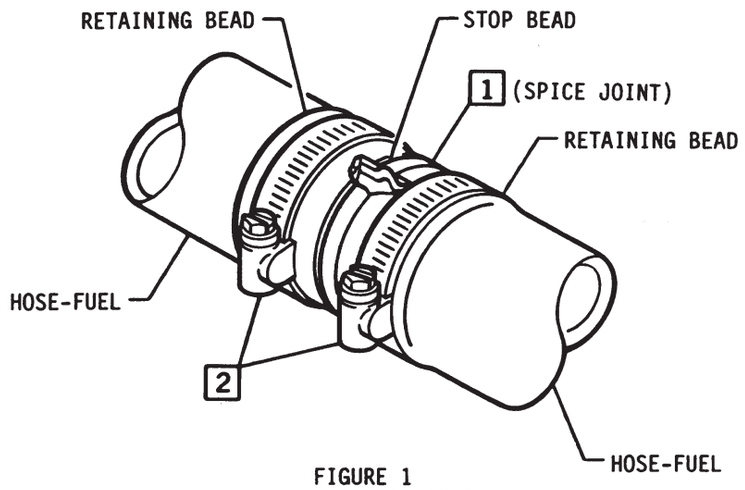


FIGURE 1
TYPICAL INSTALLATION

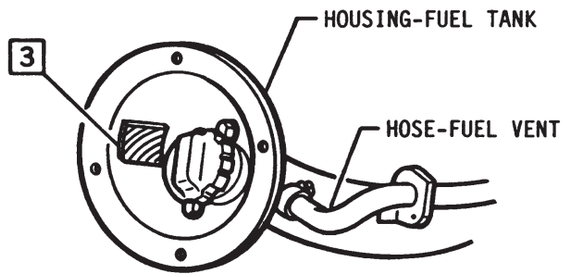


FIGURE 2
LABEL INSTALLATION

Items	Part Description	Part Number	Quantity
1	Pipe Fuel Tank Fill Instruction-Fuel Tank Fill Pipe	15958425 15001539	1 1
2	Clamp Assembly-Fuel Tank Fill Pipe	3817244	2
3	Label-Diesel Fuel Only	14039900	1 Only
	Label-Diesel Fuel Only	52350605 (Canadian)	1 Only

Pickup Box Removal Fuel Fill System Modifications (Diesel)

Parts are provided through your Chevrolet/GMC Dealer to convert the fuel fill and vent system to meet the packaging requirements of the particular bodies that are installed on the chassis. See pages 40 and 42 for part numbers and diagrams.

Certain guidelines must be adhered to in modifying the fuel fill and vent system to ensure that the completed product meets the manufacturers requirements.

1. The fuel fill and vent system must be installed such that there is adequate clearance between the fuel fill and vent system and the tires under all operating conditions. Body attachment brackets and U-bolts must also be located such that there is adequate clearance to all fuel system components, such as the fuel lines and the fuel level sending unit, under all operating conditions.

2. Splice joint (tube 2.0 inches dia. x 3.0 inches long) may be used to adjust the length and orientation of hose between the two 90° bends. To do this, the hose should be cut, the required length removed and the remaining two sections of hose reassembled using the splice joint. The hose sections must be pushed over the retaining bend and up to the stop bead in the center of the splice joint. The two clamps are to be placed between the retaining beads and the stop bead (Figure 1).
3. The fuel vent hose should be shortened by an amount equal to that removed from the fuel fill hose, that length should be taken from the fuel tank end only.
4. A minimum of 8.0 inches of fill hose must be maintained between the filler neck and the fuel tank as measured in an outboard direction from the tank surface (at the fill hose nipple) to the outlet end of the filler neck.
5. Both the fill and vent hoses must be routed (and supported, if needed) such that there are no sags or kinks. As viewed from the filler neck, both hoses must be level or sloping downward toward the tank.
6. Fuel fill hose clamps are to be driven to 19-25 lbs. in torque.
7. Fuel fill vent hose clamps are to be driven to 13-18 lbs. in torque.
8. If the application requires removal of the factory installed “Diesel Fuel Only” label the label must be replaced (Figure 2).

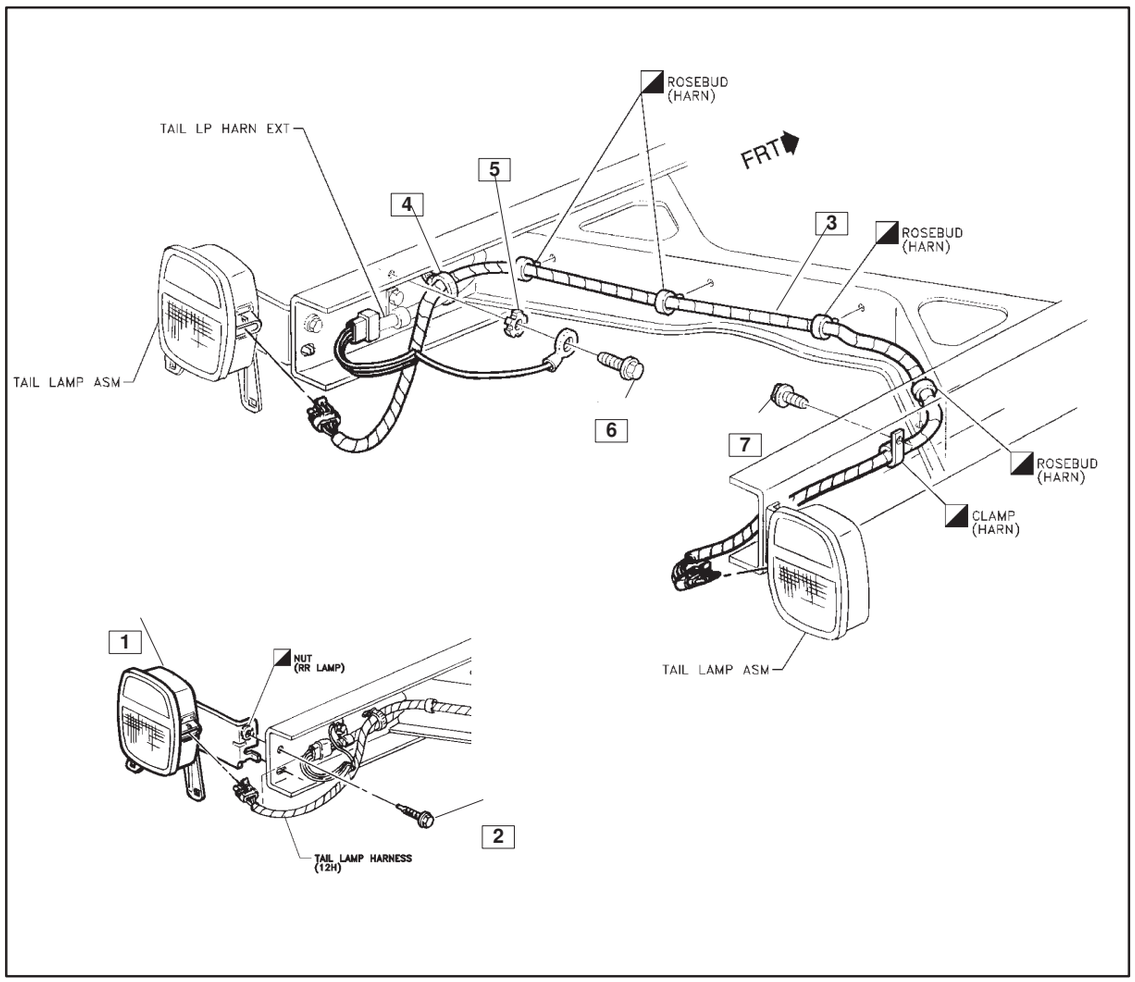
Pickup Box Removal Fuel Fill System Modifications (Gasoline)

Parts are provided through your Chevrolet/GMC Dealer to convert the fuel fill and vent system to meet the packaging requirements of the particular bodies that are installed on the chassis. See page 39 for part numbers and diagrams.

Certain guidelines must be adhered to in modifying the fuel fill and vent system to ensure that the completed product meets the manufacturers requirements.

1. The fuel fill and vent system must be installed such that there is adequate clearance between the fuel fill and vent system and the tires under all operating conditions. Body attachment brackets and U-bolts must also be located such that there is adequate clearance to all fuel system components, such as the fuel lines and the fuel level sending unit, under all operating conditions.
2. The fuel fill and vent pipe system available from the dealer includes a number of additional hose retaining beads. The pipes can be trimmed at the hose retaining beads to adjust for the various chassis lengths and body widths. The pipes must be trimmed only at locations where a hose retaining head is present. A hose retaining bead must be present at each pipe to hose interface in a modified fuel fill and vent system. Pipe ends must be free of burrs which may be detrimental to satisfactory assembly and/or function.
3. A minimum of 8.0 inches of fill hose must be maintained between the filler neck and the fuel tank as measured in an outboard direction from the tank surface (at the fill hose nipple) to the outlet end of the filler neck.
4. Both the fill and vent hoses must be routed (and supported, if needed) such that there are no sags or kinks. Excess hose length may be removed as required provided hose does not kink. As viewed from the filler neck, pipes and hoses must have a downward slope toward the tank. There should be a minimum of 4° of downward slope in the fill and vent pipe at any location.
5. The fuel fill and vent system should be restrained in the upfit vehicle. This is necessary to avoid chaffing, fretting, rubbing, etc. which may cause wear to the pipes or hoses.
6. Fuel fill hose clamps are to be tightened to 19-25 lbs. in torque.
7. Fuel fill vent hose clamps are to be tightened to 13-18 lbs. in torque.

Tail Lamp Assembly



Items	Part Description	Part Number
1	Lamp Assembly-Left hand and Right hand	15684994/5
2	Bolt/Screw	15965179
3	Harness Assembly	15302486
4	Strap	11501906
5	Washer	11501869
6	Bolt/Screw	11504585
7	Bolt/Screw	11604106

Federal Motor Vehicle Safety Standards

FMVSS 101 – Controls and Displays

This vehicle, when altered, will conform to FMVSS 101 providing no alterations are made which affect the size, location, identification or illumination of the controls and displays identified below or the location, travel and type of seat. If the seat is installed by the final stage manufacturer, the visibility and operation of the controls and displays listed below must meet the requirements of paragraph S5 of the standard:

Vehicle and system controls and displays including:

Hazard warning signal control and tell-tale
High beam control and indicator
Steering wheel

Service brake
Accelerator
Horn control
Clutch
Ignition control
Gear position display
Headlamp control
Turn signal, control and display
Brake failure warning display
Illumination intensity control
Fuel level display
Windshield wiper control
Windshield washer control
Oil pressure display
Electrical charge display
Manual choke control
Tail lamps/control
Engine coolant temperature display
Rear window defrosting and defogging controls
Manual transmission shift lever, except transfer case
Heating system controls (including fan)
Air conditioning system controls (including fan)
Engine start control
Engine stop control
Hand throttle control
Clearance lamp control
Side marker lamp control
Identification lamp control
Windshield defrosting and defogging controls
Speedometer display
* Odometer (must be metric)
* Trip recorder (must be metric)
* Hub odometer (must be metric)
Automatic vehicle speed control
Seat belt tell-tale
Anti-lock brake failure warning display
Air bag tell-tale (if so equipped)

If the alterer installs any of the aforementioned controls and displays, those controls will also have to meet the requirements of this standard.

* For Canada MVSS only, when Canadian option is specified.

FMVSS 102 – Transmission Shift Level Sequence, Starter Interlock and Transmission Braking Effect

This vehicle, when altered, will conform to FMVSS 102 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Transmission control and identification system, including but not limited to:

Automatic transmission assembly (A/T)
A/T control from steering column to transmission linkage
A/T control from floor shift mechanism to transmission linkage
A/T steering column assembly
A/T floor shift mechanism
A/T neutral safety back-up switch assembly and wire
Chassis wiring harness
A/T position indicator dial
A/T position indicator pointer
A/T position indicator actuating linkage
Transmission shift position pattern (knob, plate or label)

FMVSS 103 – Windshield Defrosting and Defogging Systems

This vehicle, when altered, will conform to FMVSS 103 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Windshield defrosting and defogging systems, including but limited to:

Windshield assembly
Heater and defroster assembly (electrical, mechanical, vacuum) (including motor and blower)
Heater and water hoses/hose assemblies
Heater blower motor resistor assembly
Defroster air duct assembly (it affects high blower speed)
Engine water outlet thermostat assembly
Heater and air conditioning wiring harness
Engine wiring harness
Heater and defroster control
Vacuum control hoses
Defroster air distributor assembly (manifold)
Defroster air to windshield outlet assembly (nozzle)
Defroster air hoses (distributor to nozzle)
Defroster outlet to heater assembly adaptor
Chassis and instrument panel wiring harness assembly

FMVSS 104 – Windshield Wiping and Washing Systems

This vehicle, when altered, will conform to FMVSS 104 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Windshield wiping and washing systems, including but limited to:

Windshield assembly
Windshield wiper arm assembly
Windshield wiper blade assembly
Windshield wiper linkage assembly
Windshield wiper/washer control
Windshield wiper/washer motor/pump assembly
Windshield module attachments
Windshield washer fluid reservoir
Washer reservoir cap
Water reservoir filler assembly
Windshield washing system hoses
Windshield washer nozzle
Chassis wiring harness

FMVSS 105 – Hydraulic Service Brake, Emergency Brake and Parking Brake Services

Allowable center of gravity variation (C/K).

These charts detail the envelope of allowable center of gravity variation for completed vehicles. This is significant for the lightly loaded portion of FMVSS 105, which is defined as curb plus 400 pounds distributed in the driver-passenger area of the vehicle.

The lightly loaded center of gravity of complete vehicles needs to be restricted so it will meet FMVSS 105 stopping distances. The laden center of gravity does not need to be specified as it is controlled within the FMVSS 105 test procedure by specific instructions as to how ballast is to be placed (while height is not controlled, it is assumed that for test purposes it would be reasonable).

For Body Builder's use, the center of gravity location can be approximated by the following formula:

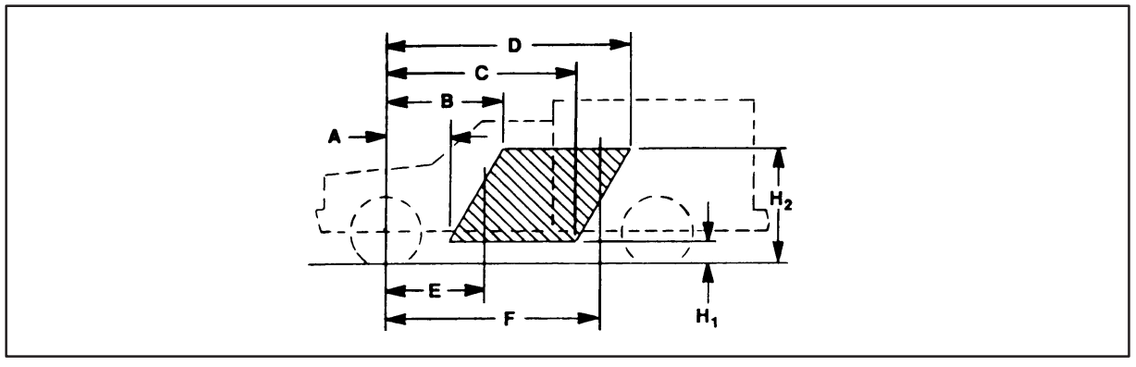
$$d = \frac{(W_{rc} + W_{rb} + 150)\ W.B.}{W_t}$$

$$h = \frac{(h_1 W_c + h_2 W_b + 10{,}000)}{W_t}$$

d	=	horizontal distance from front wheels to completed vehicle center of gravity (inches)
h	=	vertical distance from ground to completed vehicle center of gravity (inches)
W_{rc}	=	rear component of bare chassis weight (pounds)
W_{rb}	=	rear component of body weight (pounds)
W.B.	=	vehicle wheelbase (inches)
W_t	=	total weight of chassis, body (pounds) plus 400 pounds
h_1	=	center of gravity height from ground of the bare chassis, selected from the following values by model: C/K = 28”, G = 32”, M/L = 28”, P30 = 24”
W_c	=	total weight of Bare Chassis (pounds)
h_2	=	center of gravity height of body from ground (inches)
W_b	=	total weight of body (pounds)
150	=	rear component of 400 pounds (from lightly loaded definition)
10,000	=	400 pounds (from lightly loaded definition) multiplied by its vertical center of gravity height (assumed) of 25 inches

NOTE: An alternate method of center of gravity calculation may be found in the current issue of the General Motors Body Builders Book in the general instruction section and in SVIE Bulletin #39.

Allowable Center of Gravity Chart:



C.G. of vehicle in FMVSS unladen condition (Curb + 400 lbs.) must be inside shaded area – that is, it must be within the trapezoid formed by the coordinates A, B C, D, H_1 & H_2, plus it must be to the rear of vertical line E and forward of vertical line F.

C/K TRUCK (CURRENT)

Model	GVWR	Brake System			Pickup Box Removal Vehicles							
					Coordinates of Allowable C.G. Variation at FMVSS Unladen (Curb + 400 lbs.)						C.G. Limit	
											Forward	Rearward
			♦	♣	H_1	H_2	A	B	C	D	E	F
C 10953	6200	SW	JB5	JD5	15	48	52	85	93	124	52	124
C 20953	7200	SW	JB7	JD7	12	48	50	73	76	97	50	95
C 30903	9000	SW		JB8	15	48	39	59	68	88	42	85
C 30903	10,000	DW		JB8	12	48	59	85	75	110	59	100
C 30943	9000	SW		JB8	15	45	50	76	87	113	54	109
C 30943	9600	SW		JB8	15	45	50	76	87	113	54	109
C 30943	10000	DW		JB8	15	48	75	100	96	124	75	124
C 30953	9000	SW		JB8	15	48	46	70	80	104	50	101
C 30953	10,000	DW		JB8	12	48	59	86	89	116	59	116
K 10953	6200	SW	JB5	JD5	15	48	52	85	93	124	52	124
K 10953	6600	SW	JB6	JD6	15	48	54	83	90	121	54	121
K 30903	9200	SW		JB8	15	48	39	59	68	88	42	85
K 30903	10,000	DW		JB8	12	48	57	81	76	100	57	100
K 30943	10,000	DW		JB8	15	48	75	100	96	124	75	124
K 20953	8600	SW	JB7	JD7	12	48	52	78	83	106	52	106
K 30953	9200	SW		JB8	15	48	46	70	80	104	50	101
K 30943	9200	SW		JB8	15	48	75	100	96	124	75	124
K 30953	10,000	DW		JB8	12	48	59	86	89	116	59	116

SW = Single Wheel
DW = Dual Wheel
C.G. = Center of Gravity

♦ JB5, JB6 and JB7 . . . . . Vacuum Powered Diaphragm Booster
♣ JB8, JD5, JD6 and JD7 . . . . . Hydraulic Boosters

FMVSS 106 – Brake Hoses

This vehicle, when altered, will conform to FMVSS 106 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Hoses and hose end fittings
Labeling requirements

FMVSS 108 – Lamps, reflective Devices and Associated Equipment

This vehicle, when altered, will conform to FMVSS 108 if it is completed with a body over 80 inches wide providing the following conditions are met:

1. Each of these devices must be properly installed on the completed vehicle and meet all the requirements of FMVSS 108:
   a. The following devices when provided, located and/or wired by General Motors meet the requirements of this standard:

Headlamps and/or foglamps	Front cab roof clearance and identification lamps
Front side marker reflex reflectors	Rear reflex reflectors
Front side marker lamps	Tail lamps
Front turn signal lamps	Stop lamps
Turn signal operating unit	License plate lamp
Turn signal flasher	Rear turn signal lamps
Vehicle hazard warning signal operating unit	Back-up lamps
Vehicle hazard warning signal flasher	Center high-mounted stop lamp
Mud flaps w/reflectors (Tractor only)	Rear cab conspicuity reflectors (Tractor only)

   b. No part of the completed vehicle shall be installed so as to prevent any of the devices listed in (a) above from meeting their required photometric output at the specified test points. If such interference exists, the applicable devices may have to be relocated or additional devices added to meet the requirements of FMVSS 108. Any FMVSS 108 part shall not be painted.
   c. The following additional devices must be installed on the van body and meet all the requirements of this standard:

Rear side marker lamps	Rear side marker reflex reflectors
Front and rear clearance lamps	Front and rear identification lamps

   d. The following additional devices must be installed on the van body and meet all the requirements of this standard if the overall vehicle length is 30 feet or greater:

Intermediate side marker lamps	Intermediate side reflex reflectors

   e. C/K 300(03) Chassis Cabs with Roof Marker Lamp - Delete, Option 9H5 will comply with Standard 108 provided clearance and identification marker lamps are installed on the completed vehicle.
2. No alterations (other than any relocation of items in 1(a) which may be necessary to conform to the standard) should be made which affect the location, mounting surfaces, function, environment or visibility clearance of the above listed devices which have been installed on this incomplete vehicle.

FMVSS 111 – Rearview Mirrors

This vehicle, when altered, will conform to FMVSS 111 providing no alterations or substitutions are made to the outside or inside mirrors furnished with the vehicle, the driver's seat location is not altered and the body width is not increased.

FMVSS 112 – Headlamp Concealment Devices

Conformity with FMVSS 112 is not substantially affected by the design of this incomplete vehicle and General Motors makes no representation as to the conformity with this standard.

FMVSS 113 – Hood Latch System

This vehicle, when altered, will conform to FMVSS 113 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Hood latch systems, which may include but are not limited to:

Hood latch (catch) assembly	Hood latch pilot
Hood latch support assembly	Hood latch striker plate (hook)

FMVSS 114 – Theft Proctection
(GVWR of 10,000 Pounds or Less)

This vehicle, when altered, will conform to FMVSS 114 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Steering column lock assembly

U.S. CFR 49, PART 567/CMVSS 115 – Vehicle Identification Number

This vehicle, when completed, will conform to CMVSS 115 and U.S. CFR 49, part 567, providing no alterations are made to the Vehicle Identification Number or to the environment, location, vital spatial clearances or visibility of the VIN Plate.

FMVSS 116 – Motor Vehicle Brake Fluids

This vehicle, when equipped with approved hydraulic brake fluid will conform to FMVSS 116 providing no alterations are made which affect the physical or chemical properties of the brake fluid.

FMVSS 120 – Tire Selection and Rims for Vehicles Other than Passenger Cars

This vehicle, when completed, will conform to FMVSS 120 providing no alterations are made which affect the function, physical or mechanical properties or the attachment of the wheels and tires.

The tire and wheel information shown on the Incomplete Vehicle Document Label must be transferred to the final stage manufacturer's Certification label or Tire Information Label providing no equipment changes are made.

FMVSS 124 – Accelerator Control Systems

This vehicle, when altered, will conform to FMVSS 124 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Accelerator control systems, including but not limited to:

Lever, throttle or accelerator and supporting bracket
Cable or rod, throttle or accelerator and support bracket including seals
Electronic throttle control assembly and related wiring
Cruise control module, wiring and cable (if so equipped)
Spring(s)-throttle or accelerator return
Pedal-throttle or accelerator and attachments
Floor covering material must not be installed under pedal nor within 1 inch of side of pedal
Attachment pin, hole or ball stud to carburetor/port fuel injection unit throttle lever

FMVSS 201 – Occupant Protection in Interior Impacts
(GVWR of 10,000 Pounds or Less)

This vehicle, when completed, will conform to FMVSS 201 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Instrument panel
Seats
Interior compartment doors
Sunvisors
Arm rests

FMVSS 202 – Head Restraints
(GVWR of 10,000 Pounds or Less)

This vehicle, when altered, will conform to FMVSS 202 providing no alterations or substitutions are made to the seat assemblies.

FMVSS 203 – Impact Protection for the Driver from the Steering Control System
(GVWR of 10,000 Pounds or Less)

Conformity with FMVSS 203 is not substantially affected by the design of this incomplete vehicle and General Motors makes no representation as to the conformity with this standard.

FMVSS 204 – Steering Control Rearward Displacement
(GVWR of 10,000 Pounds or Less)

This vehicle, when altered, will conform to FMVSS 204 providing no alterations are made to the cab and front end sheet metal and structural components, roof, hood, hood mechanism, doors, fenders, pillars, fender reinforcement, cowl, bumpers and bumper mounting system, frame/frame reinforcement, front suspension and front cross-member or steering control system or other components that would affect the steering control system displacement in a 30 m.p.h. fixed barrier impact.

FMVSS 205 – Glazing Materials

This vehicle, when altered, will conform to FMVSS 205 providing no alterations are made which affect the physical or chemical properties of the glazing material or the monogram or the visibility of the monogram.

FMVSS 206 – Door Locks and Door Retention Components
(Not Applicable to Bus)

This incomplete vehicle, when completed, will conform to FMVSS 206 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Door and pillar systems, including but not limited to:

Door lock
Inside lock control linkage
Door latch
Door wedges
Door latch striker plate
Door hinge
Exterior door handles

FMVSS 207 – Seating Systems

This vehicle, when altered, will conform to FMVSS 207 providing no alterations are made which affect the function, physical or mechanical properties, environment, location and vital spatial clearances of the components, assemblies or systems provided and identified below:

Seating systems, including but not limited to:

Seat assembly
Folding seat or seat back latch assembly
Seat or seat back latch striker
Seat riser
Seat adjuster assembly
Seat or seat back latch assembly
Seat or seat back latch release control
Seat anchorages brackets, reinforcements, attachment hardware, etc.

If the intermediate or final stage manufacturer installs any additional seats, they will also have to meet the requirements of this standard.

FMVSS 208 – Occupant Crash Protection

This vehicle, when altered, will conform to FMVSS 208 providing it is completed in accordance with the following specific conditions by the final stage manufacturer:

1. The front seat belts provided by General Motors will conform to the requirements of FMVSS 208, providing no alterations are made to:
   a. the number, location or configuration of the designated seating positions; and
   b. the number, placement, installation or model number of the seat belt assemblies provided; and
   c. the instrument panel or its mounting, the steering column/shaft or its mounting, the knee bolster or its mounting, the steering wheel, horn pad, driver air bag module or its mounting and covering, passenger air bag module or its mounting or covering (if so equipped), air bag crash sensors, Sensor Diagnostic Module (SDM) in *C/K*, and all air bag system wiring. Do not relocate or move the SDM.

      Do not obstruct the path of air bag deployment. (see restricted area reference in appendix.)

      Do not mount any components that produce more than a 20 Gauss magnetic field as measured at the SDM. Speakers*/magnets* must be located at least 5 inches from the SDM.

      You must disconnect the SDM before doing any welding on the vehicle, otherwise do not disconnect the SDM.

   If the sunshade is removed or altered, a new Inflatable Restraints System Caution label must be installed per the sketch found in Part III of this document. A label has been shipped loose. In order to be in compliance with FMVSS 208 no other label shall be installed on the same side of the sunvisor as the Inflatable Restraint Caution (Air Bag) label. Instrument panel temporary warning label must not be removed.

   NOTE: Most air bag wiring is wrapped with yellow tape and all air bag components have yellow connectors.

   CAUTION: To help avoid Personal Injury Due to unwanted air bag inflation, observe the following precautions!

      Do not weld, solder, braze, hammer, machine, drill, heat, electrical splice, add onto, remove, relocate, test, paint, loosen or in any way alter air bag components or wiring or fuses. Carpet may be put over the SDM if an appropriate moisture barrier (such as a rubber matted backing) is supplied.

      When performing any operation around air bag components or wiring including but not limited to any operations around the instrument panel, electrical wiring and fuse block, steering column/wheel, and the engine compartment you must disable the air bag system prior to the operation. If the vehicle is equipped with an SDM, you must disable the air bag system prior to upfitting. *Note: Striking or dropping a powered SDM may cause air bag deployment.* The air bag system must be enabled after operation completion. This must be verified before shipping the vehicle. Instructions for disabling and enabling the air bag system can be found in the GM service manual for the specific product line.

   d. the vehicle frame, front bumper system, front sheet metal or other front structure, roof structure, doors, floor pan, driveline or contents of the engine compartment by any subsequent manufacturer which would result in any difference from the modified vehicle's deceleration if the modified vehicle were to be subjected to barrier impact tests conducted per FMVSS 208.
2. The rear seat belts provided by General Motors will conform to FMVSS 208 providing no alterations are made to the number, location or configuration of the designated seats/seating positions or to the number, placement, installation or model number of the seat belt assemblies of this incomplete vehicle.

FMVSS 209 – Seat Belt Assemblies

The seat belt assembly provided by General Motors, at any designated seating position, will conform to the standard providing no alterations or substitutions are made to the seat belt assembly, attachment hardware, Owner's Manual Instructions or seats provided. For vehicles having GVWR of 8500 pounds or less, the vehicle model number as shown on the label on the cover of this document must be included on the final stage manufacturer's certification label.

FMVSS 210 – Seat Belt Assembly Anchorages

This vehicle, when altered, will conform to FMVSS 210 providing no additional occupant seats or seat belt assembly anchorages are added and no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Seat belt systems, including but not limited to:

Seat assemblies
Floor pan assembly
Seat belt routing
Seat belt assemblies
Seat position/adjustment capability
Seat belt anchorage brackets/reinforcements

FMVSS 212 – Windshield Mounting
(GVWR of 10,000 Pounds or Less)

This Incomplete Vehicle, when completed, will conform to FMVSS 212 if:

1. No alterations are made to the cab and front end structural components including roof, hood and hood mechanism, doors, fenders, pillars, fender reinforcement, cowl, bumpers and bumper mounting system, windshield and windshield mounting system and frame/frame reinforcement.
2. The maximum weight of the body and/or equipment installed must be such that the completed vehicle's unloaded vehicle weight does not exceed the values specified in Table "A" (page 54).
3. The center of gravity for the respective body type of the installed body and accessories does not exceed the maximum center of gravity height specified in Table "A" (page 54).
4. The height above the frame of the body or accessories does not exceed the maximum body height specified in Table "A" (page 54).
5. The clearance between the rear most part of the cab and the front of the body is not less than the minimum cab to body clearance specified in Table "A" (page 54).
6. The minimum vertical clearance between the cab roof and any portion of the installed body or accessories that extends over the cab roof must not be less than eight inches.
7. The maximum body weight does not exceed the value specified in Table "A" (page 54).
8. During a 30 m.p.h. frontal barrier impact test, no component installed by any subsequent manufacturer shall move forward from its permanently mounted position.

FMVSS 214 – Side Impact Protection
(GVWR of 10,000 Pounds or Less)

This incomplete vehicle, when completed, will conform to FMVSS 214 providing no alterations are made to the cab, roof, floor, side pillars, fuel system, chassis, structural components and door assemblies.

FMVSS 216 – Roof Crush Resistance
(GVWR of 6000 Pounds or Less)

This vehicle conforms to FMVSS 216 providing no alterations are made to the cab, roof, side pillar, structural components and door assemblies.

FMVSS 219 – Windshield Zone Intrusion
(GVWR of 10,000 Pounds or Less)

This incomplete vehicle, when completed, will conform to FMVSS 219 providing: no alterations are made to the cab and front end structural components, the hood and hood mounts; the vehicle does not exceed the Chassis Cab unloaded vehicle weight specified in Table "A"; and during a 30 m.p.h. frontal barrier impact test: (1) no component installed by any manufacture shall prevent the hood from folding upward along the lateral centerline; and (2) no component installed by any manufacturer shall penetrate the windshield or protected zone.

FMVSS 301 – Fuel System Integrity MPV'S, Trucks and Buses
(GVWR of 10,000 Pounds or Less)

This vehicle, when altered, will conform to FMVSS 301 providing it is completed in accordance with the following specific conditions by the final stage manufacturer:

1. The following items when installed by General Motors will conform providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Fuel feed pipes-front, rear and intermediate
Fuel return pipes-front and rear
Fuel feed and return hose-front rear and intermediate
Fuel tank assembly
Fuel vapor lines and cannister
Fuel tank cap assembly
Fuel tank filler neck screws
Fuel tank filler neck hose
Fuel tank filler neck vent hose
Fuel tank filler neck vent hose clamp/strap

Fuel tank meter assembly
Fuel tank shields/cage
Fuel tank filler neck plate
Fuel hose shield
Fuel tank filler neck hose clamp/ clamp assembly
Fuel tank filler neck assembly upper
Fuel filter

2. This incomplete vehicle, when completed, will conform to FMVSS 301 Fuel System Integrity if:
   a. No alterations are made to the fuel system and attaching or protective structure.
   b. The unloaded cab chassis vehicle weight of the completed vehicle does not exceed the weight listed in Table "A" (page 54).
   c. Any subsequent manufacturer completes the fuel filler neck installation according to the instructions available in the current year's Body Builders' Book.
   d. During all barrier impact tests:
      1. No component installed by any subsequent manufacturer impinges or causes distortion to the fuel system with sufficient energy to puncture or separate the fuel system.
      2. No vehicle modification by any subsequent manufacturer results in any portion of the vehicle impinging upon or causing distortion to the fuel system with sufficient energy to puncture or separate the fuel system. Care should be taken that the structural integrity of the vehicle is restored following any modification of the structure.

FMVSS 302 – Flammability of Interior Materials

This vehicle, when altered, will conform to FMVSS 302 providing no alterations or substitutions are made which affect any materials, parts or components identified below and installed on the Chassis Cab by General Motors:

Seat cushions
Seat backs
Seat belts
Headlining
Arm rests
Floor covering
Console
Compartment shelves
Sunvisors
Curtains
Shades
Wheel housing covers
Head restraints
Engine compartment covers
Instrument panel
All trim panels including door, front, rear and side panels

Any other interior materials, including padding and crash deployed elements that are designed to absorb energy on contact by occupants in the event of a crash

Canadian Motor Vehicle Safety Standards

CMVSS 1101–Emission Device

CMVSS 1102–Crankcase Emission

CMVSS 1103–Exhaust Emission

CMVSS 1104–Opacity (Diesel Engine Only)

CMVSS 1106–Noise

This vehicle, when altered, will conform to the above standards except 1106 providing no alterations are made which affect the function, physical or mechanical properties, environment, locations or vital spatial clearances of the components identified below:

* Engine assembly
* Ignition system
Exhaust emission control system
P.C.V. system
* Exhaust system
Fuel system
* Transmission assembly
* Tires
Diesel fuel injection controls
* Carburetor and choke controls
* A.I.R. system
Crankcase emission control system
* Intake system
* Catalytic converter
Evaporative emission control system
* Axle
* Fan and drive
Turbocharger and associated controls

When completed, it should conform to CMVSS 1106 providing no alterations are made to the noise attention components identified thus* in the above list.

Canadian Radio Frequency Interference Regulations

This vehicle, when altered, will conform to the above regulations providing no alterations or substitutions are made which affect any parts of components identified below:

Distributor
Ignition wires
Spark plug wires

U.S. EPA and California Exhaust and Evaporative Emission Requirements

Light Duty trucks (Light and Medium Duty in California) are certified by the primary manufacturer and the vehicle is labeled as being in compliance with emission and fuel economy requirement.

In addition, all gasoline powered Federal/California Light Duty, Medium Duty and Heavy Duty vehicles are required to have an approved fuel evaporative emission control system. Vehicle certified to Heavy Duty emission standards also require special evaporative emission labeling. In order to assure that Environmental Protection Agency (EPA), National Highway Traffic Safety Administration (NHTSA), and California Emission Certification and/or Fuel Economy regulations are met, this vehicle must be completed in strict accordance with all instructions contained in this manual, especially the following instructions which relate to:

A. Emission Related Components

Further compliance of this vehicle with EPA and/or California Emission Certification requirements will be maintained providing no alterations (except where noted) are made to the components identified below:

	Engine assembly		EGR system
	Fuel system		Ignition system
*	Transmission assembly		Exhaust emission control system
*	Axle ratio		Crankcase emission control system
*	Tires	**	Evaporative emission control system
	Diesel fuel injection controls		Air inlet system
	Turbocharger and associated controls		Exhaust system
	Electronic closed loop carburetor		Catalytic converter
	Engine electronics		TBI unit
	Exhaust oxygen sensor		Electronic closed loop TBI system

* Applicable only to Light Duty Trucks.

** All Federal/California gasoline powered Heavy Duty vehicles will have an evaporative emission control system that is certified for a fuel tank capacity not to exceed the amount shown on the Vehicle Evaporative Emission Control Information Label located on the air cleaner. Persons wishing to add fuel tank capacity above the amount shown must contact California Air Resources Board and/or submit a written statement to the EPA Administrator that the Hydrocarbon storage system has been upgraded according to the requirements of 40 CFR 86.088-35 (g) (2).
In addition, compliance with applicable fuel evaporative emission regulations will be maintained if no alterations are made to the fuel filler neck(s) and any subsequent manufacturer completes the fuel filler neck installation(s) and fuel level sender installation(s) according to the instructions which are furnished in the current year's Body Builders' Book.

B. Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks (applicable only to California gasoline powered vehicles).

This vehicle, will conform to Title 13, California Administrative Code Chapter 3 Air Resources Board Subchapter 7, "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" if no alterations are made to the fuel filler neck(s) and any subsequent manufacturer completes the fuel filler neck installation(s) according to the instructions which are furnished in the current year's Body Builders' Book.

Table 'A'

These Pickup vehicles when altered will conform to FMVSS 212, 219, 301 providing the following conditions are met:

Model/ Wheelbase	General Body Type	★ Maximum Body Ctr of Gravity Height (Inches)	Maximum Body Height (Inches)	Minimum Cab to Body Clearance (Inches)	●◆ Maximum Unloaded Vehicle Weight (Pounds)	Body Weight (Pounds)	
						▲Minimum	Maximum
C/K 20903 w/C6P C/K 30903 131.5 WB 56" CA Regular Cab	Low Service (C/K) High Service (C)	14.0 20.3	Under 62.0 62.0 & Over	3.0	6,470		1,700 2,600
C/K 30943 164.5 WB 56" CA Crew Cab	Low Service (C/K) High Service (C)	14.0 20.3	Under 62.0 62.0 & Over	3.0	6,470		1,700 2,600
C/K 20953 w/C6P C/K 30953 155.5 WB 56" CA Extended Cab	Low Service (C/K) High Service (C)	14.0 20.3	Under 62.0 62.0 & Over	3.0	6,470		1,700 2,600

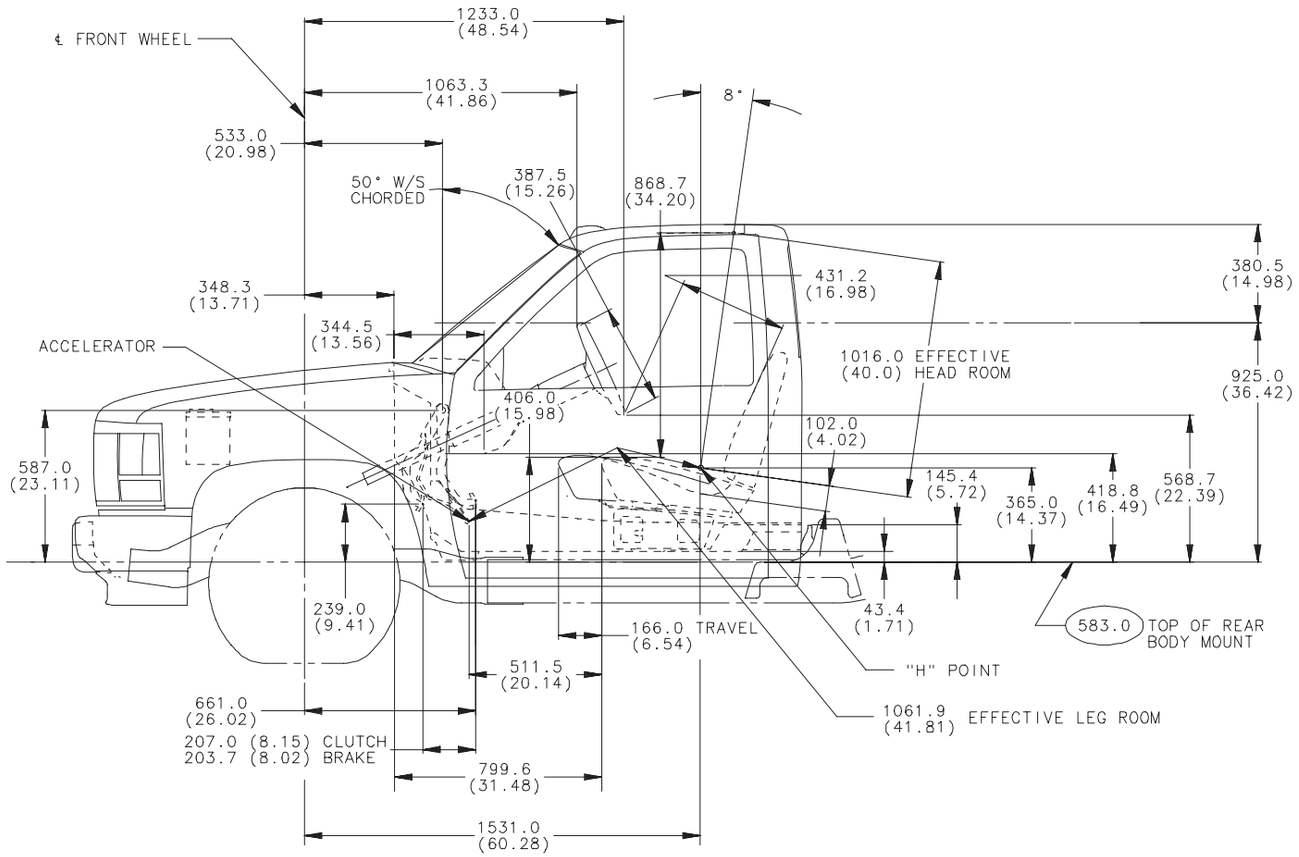
★ These dimensions are measured vertically form top of frame directly behind cab.

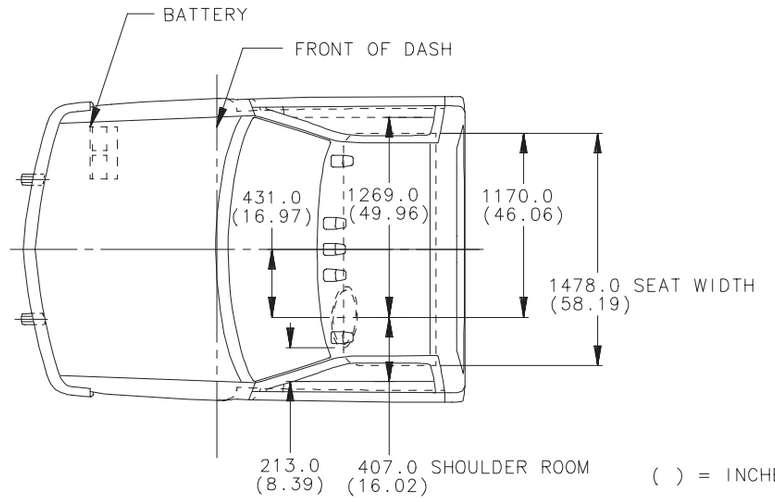
◆ Unloaded vehicle weight means the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo or occupants. The body weight (+) the vehicle weight must not exceed the "Maximum Unloaded Vehicle Weight".

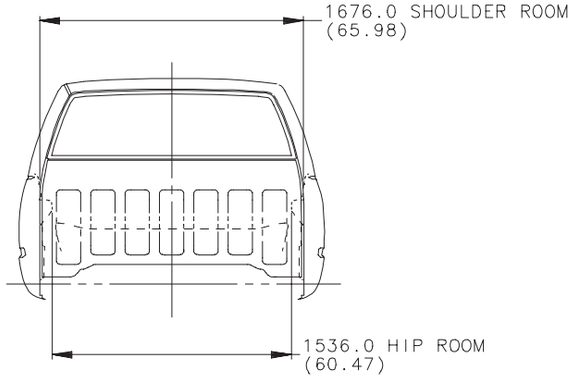
● On vehicles of 8,500 pounds GVWR or less, see the Vehicle Emission Control Information, Engine Exhaust Emission Control Information or Important Engine Information Label in the vehicle engine compartment for completed vehicle curb weight requirements.

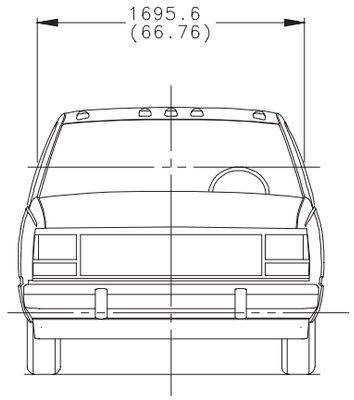
▲ Weight of Pickup Box
Note: Bumper weight of 35 lbs. is not included.

C/K Truck, Regular Cab, Interior

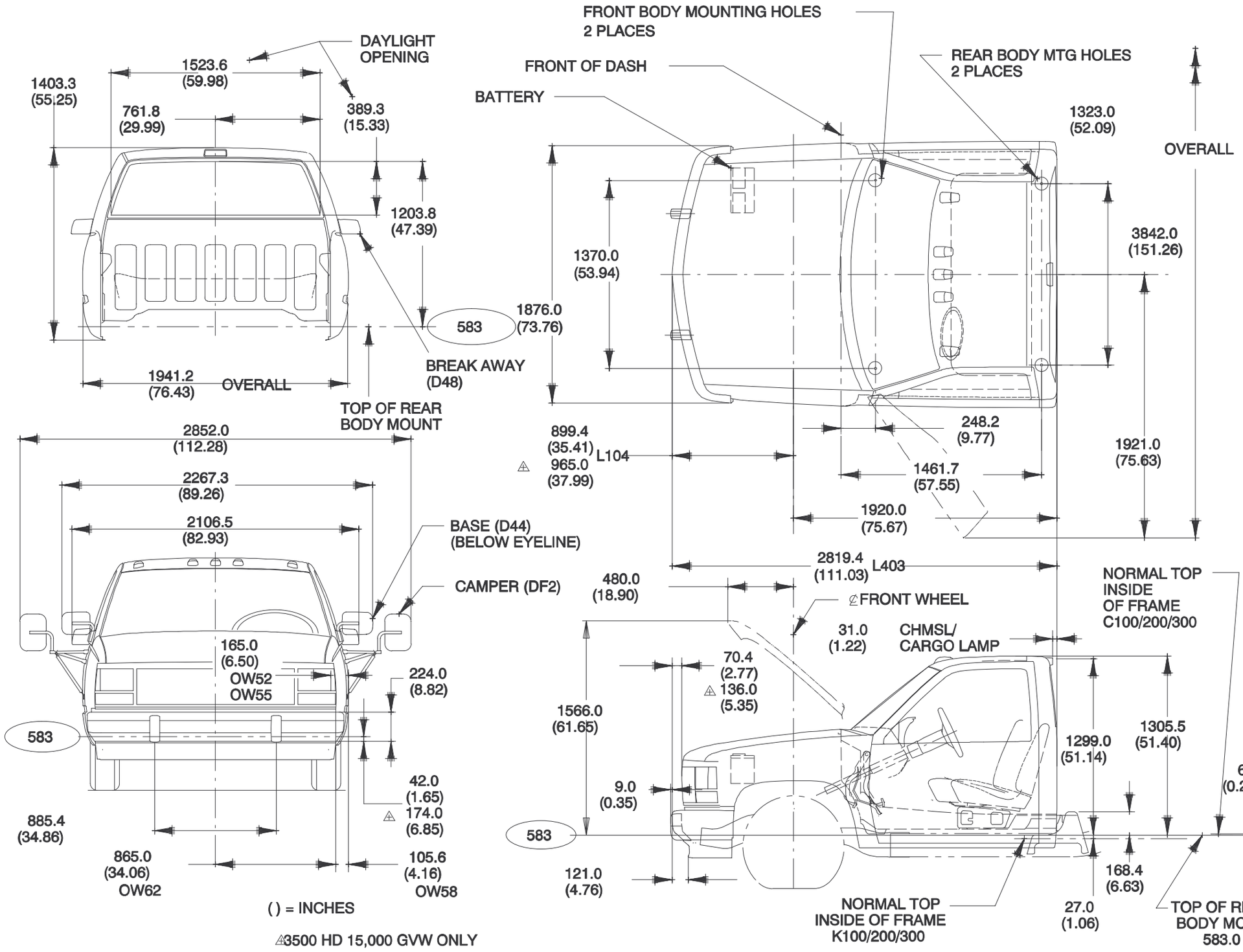








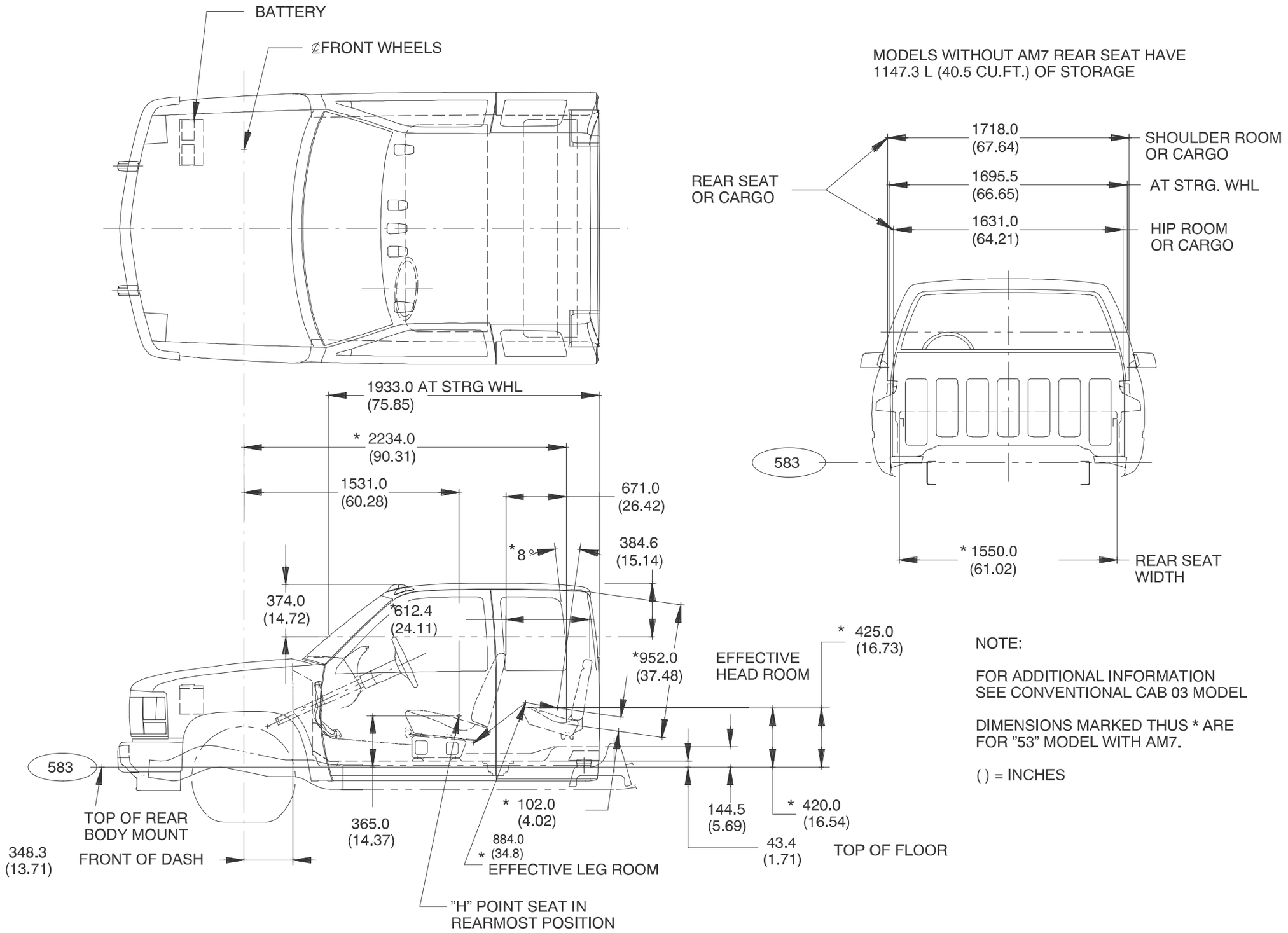
C/K Truck, Regular Cab, Exterior



( ) = INCHES

△3500 HD 15,000 GVW ONLY

C/K (107/207)53, Extended Cab, Interior



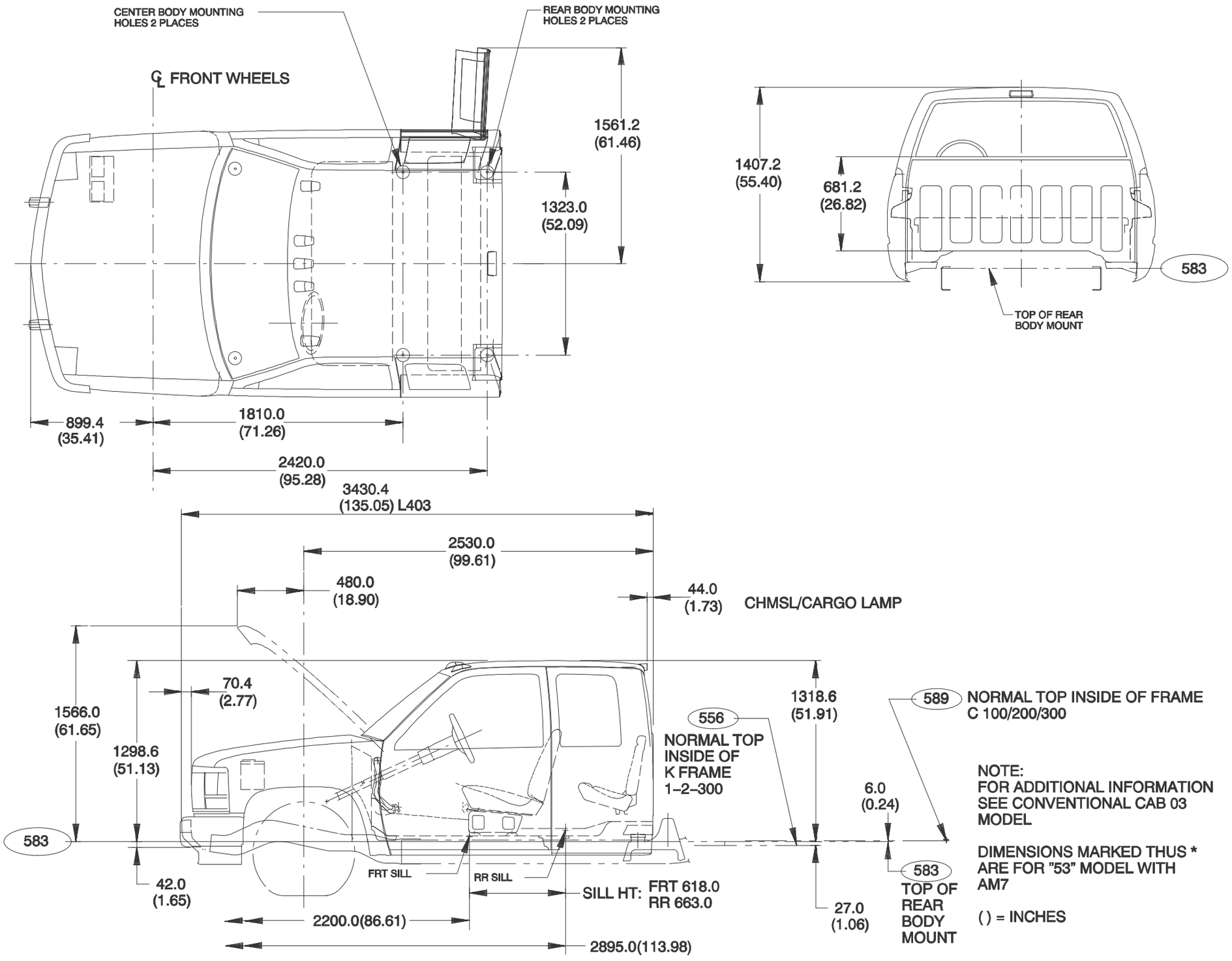
NOTE:

FOR ADDITIONAL INFORMATION
SEE CONVENTIONAL CAB 03 MODEL

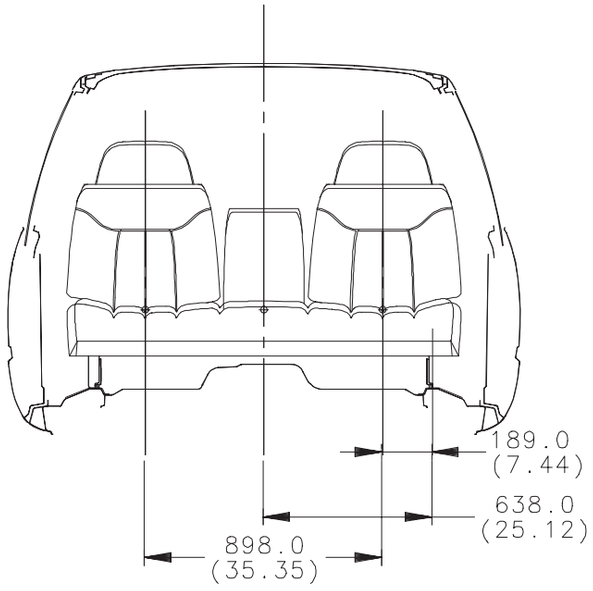
DIMENSIONS MARKED THUS * ARE
FOR "53" MODEL WITH AM7.

( ) = INCHES

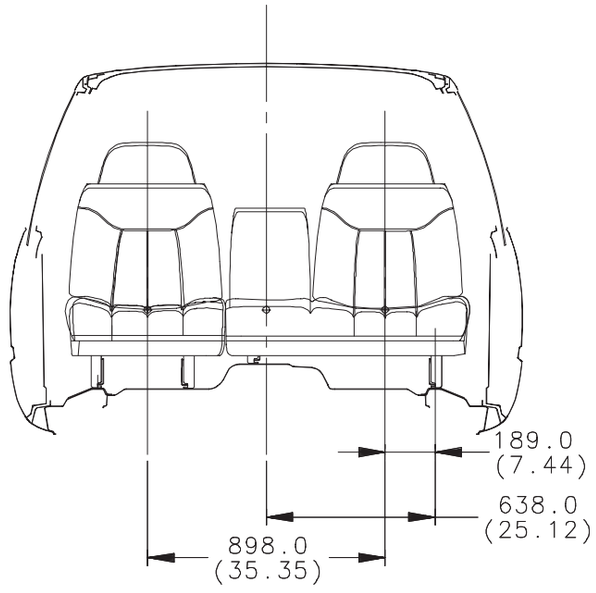
C/K (107/207)53, Extended Cab, Exterior w/E24 Rear Access Door



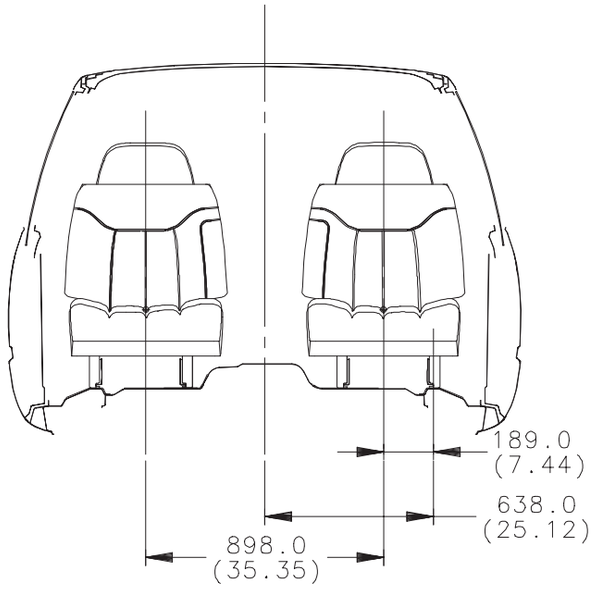
C/K (207/307/309)43 Crew Cab, Interior



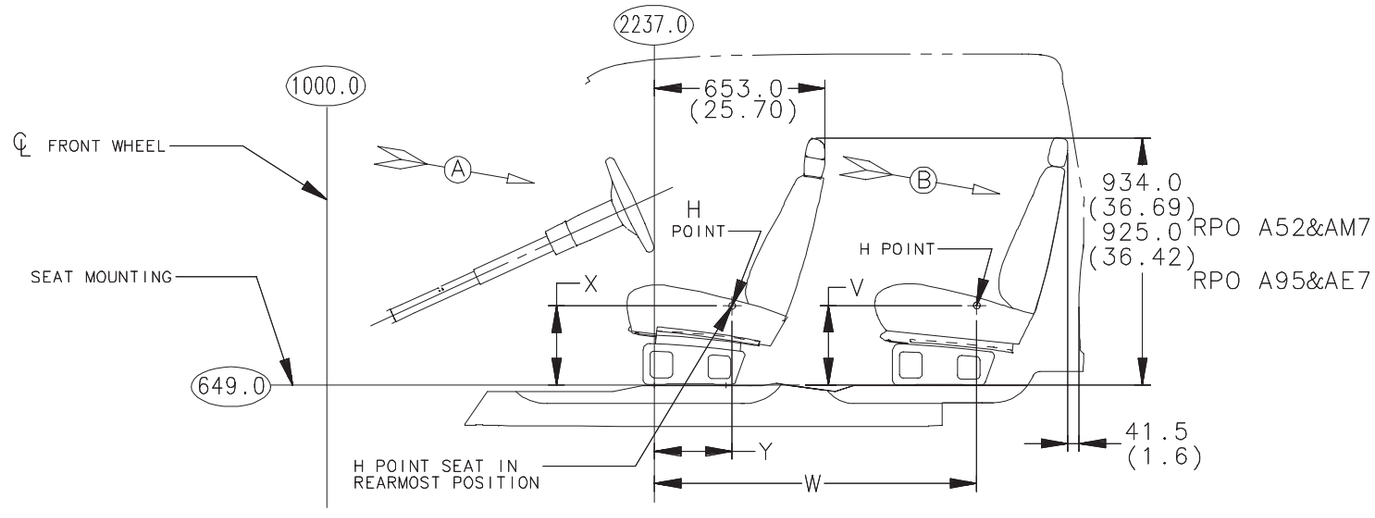
VIEW IN DIRECTION OF ARROW A
FRONT FULL BENCH SEAT RPO A52



VIEW IN DIRECTION OF ARROW A
FRONT SPLIT BENCH SEAT RPO AE7

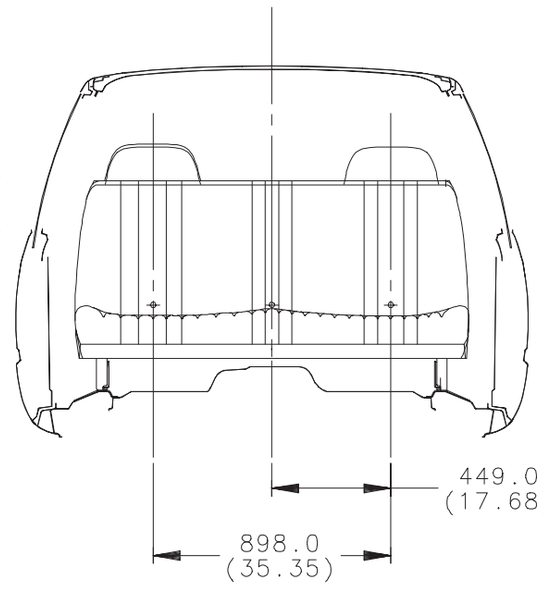


VIEW IN DIRECTION OF ARROW A
FRONT HI-BACK BUCKET SEATS RPO A95



	H POINT FOREMOST POSITION	H POINT REARMOST POSITION
X	308.6 (12.14)	299.0 (11.77)
Y	119.2 (4.69)	294.0 (11.57)

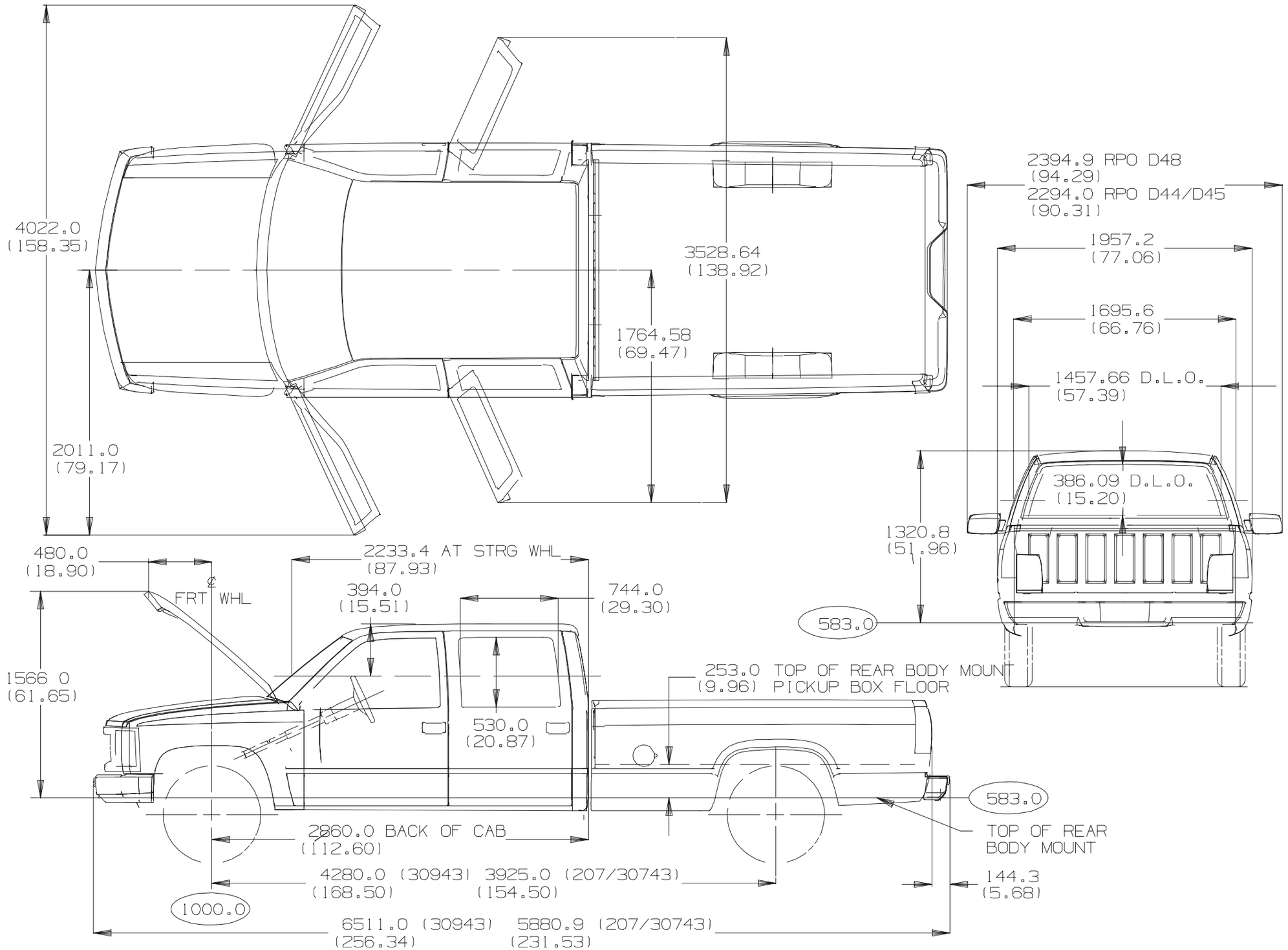
	H POINT FOREMOST POSITION	H POINT REARMOST POSITION
V	311.0 (12.24)	301.0 (11.85)
W	1121.0 (44.13)	1219.0 (48.00)



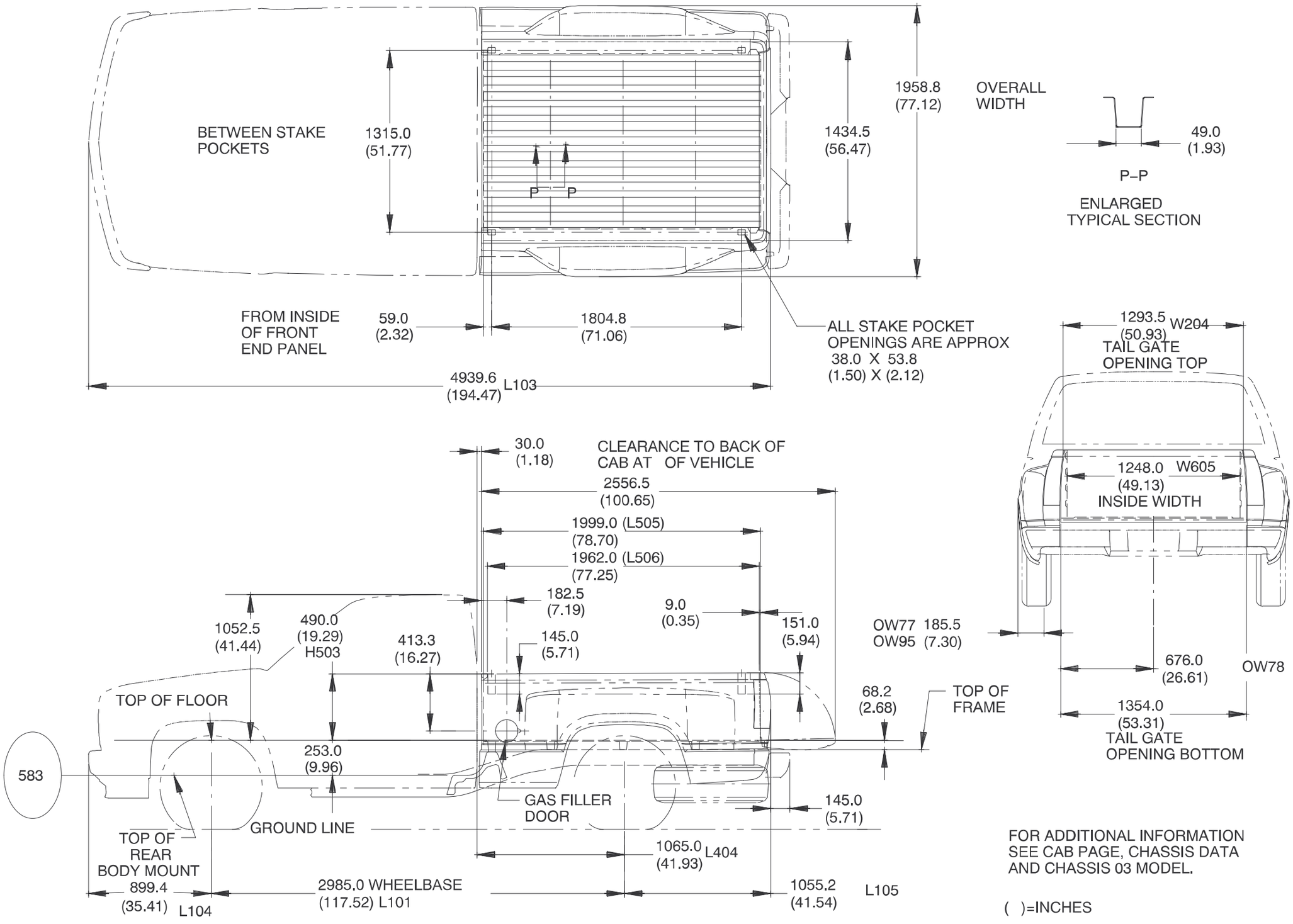
VIEW IN DIRECTION OF ARROW B
REAR FULL BENCH SEAT RPO AM7

( ) = INCHES

C/K (207/307/309)43 Crew Cab, Exterior



C/K Truck Pickup Box, Sportside, 6.5 ft.

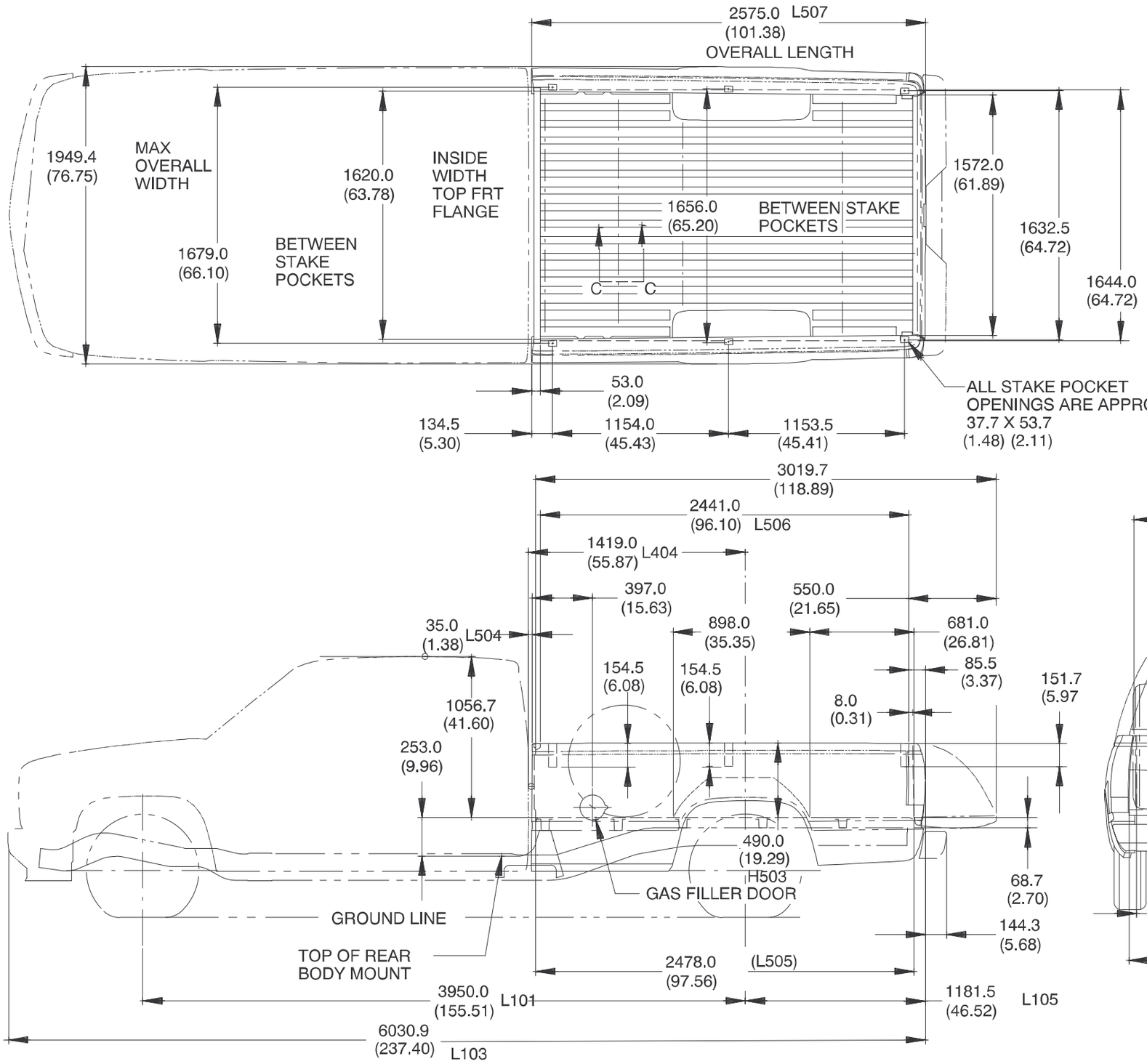


FOR ADDITIONAL INFORMATION SEE CAB PAGE, CHASSIS DATA AND CHASSIS 03 MODEL.

( )=INCHES

C/K TRUCK (CURRENT)

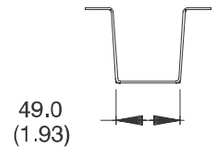
C/K Truck Pickup Box, Fleetside/Wideside, 8 ft.



NOTE:
SEE FLEETSIDE BODY E63 WITH CONVENTIONAL CAB (03) FOR OPTIONAL DUAL REAR TIRE EQUIPMENT.

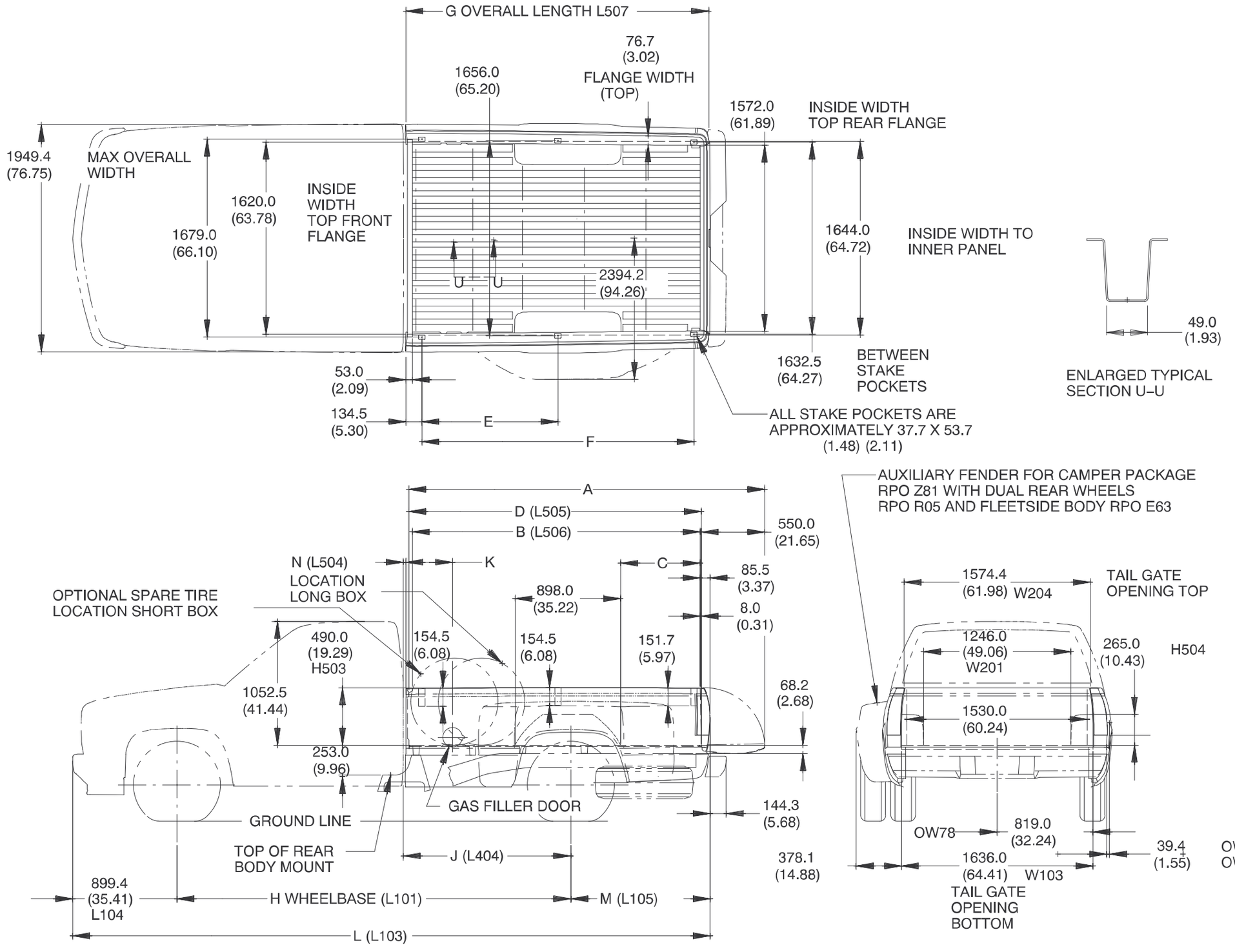
FOR ADDITIONAL INFOR MAION SEE CAB PAGE. CHASSIS DATA AND CHASSIS "53" MODEL

( ) = INCHES



ENLARGED TYPICAL
SECTION C–C

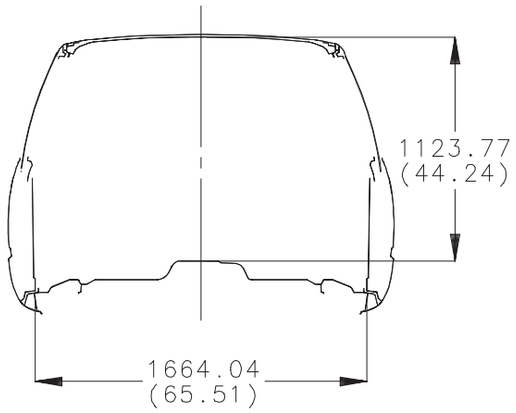
C/K Truck Pickup Box, Fleetside/Wideside and Heavy Hauler/Big Dooley



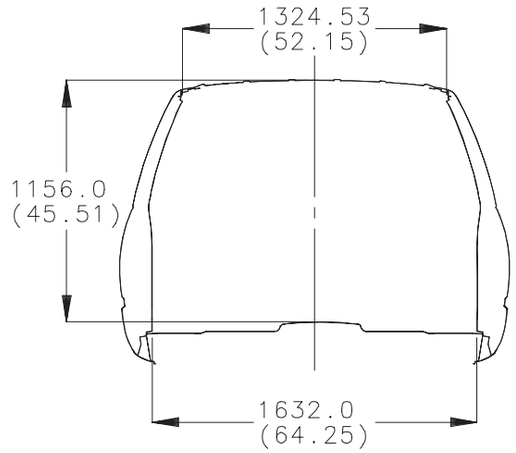
C/K Truck Pickup Box, Fleetside/Wideside and Heavy Hauler/Big Dooley

Series	C/K 107/207(53)	C/K 30903	C/K 30953	C/K (207/307)43)
A	2540.0 (100.00)	3020.0 (118.90)	3020.0 (118.90)	2540.0 (100.00)
B	1961.0 (77.20)	2441.0 (96.10)	2441.0 (96.10)	1961.0 (77.20)
C	549.0 (21.61)	681.0 (26.81)	681.0 (26.81)	549.0 (21.61)
D	1998.0 (78.66)	2478.0 (97.56)	2478.0 (97.56)	1998.0 (78.66)
E	—	1154.0 (45.43)	1154.0 (45.43)	—
F	1827.5 (71.95)	2307.5 (90.85)	2307.5 (90.85)	1827.5 (71.95)
G	2095.0 (82.48)	2575.0 (101.38)	2575.0 (101.38)	2095.0 (82.48)
H	3595.0 (141.50)	3340.0 (131.50)	3950 (155.51)	3925.0 (154.5))
J	1064.0 (41.89)	1419.0 (55.87)	1419.0 (55.87)	1064.0 (41.89)
K	194.2 (7.65)	397.0 (15.63)	397.0 (15.63)	194.2 (7.65)
L	5550.9 (218.54)	5420.9 (213.42)	6030.0 (237.40)	5880.9 (231.53)
M	1056.5 (41.59)	1181.5 (46.52)	1181.5 (46.52)	1056.5 (41.59)
N	35.0 (1.38)	35.0 (1.38)	35.0 (1.38)	35.0 (1.38)

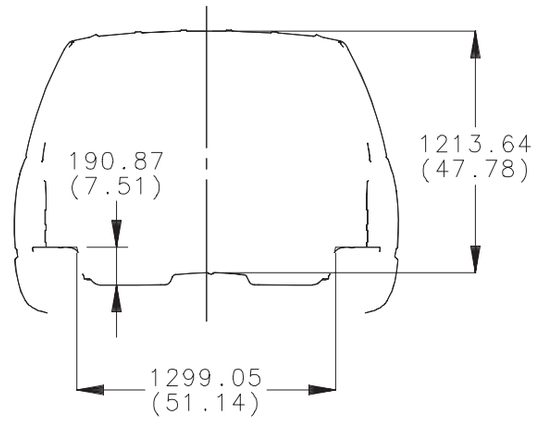
C/K (109/209)06 Suburban, Interior Sheet Metal



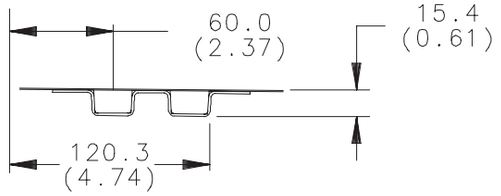
SECTION A–A



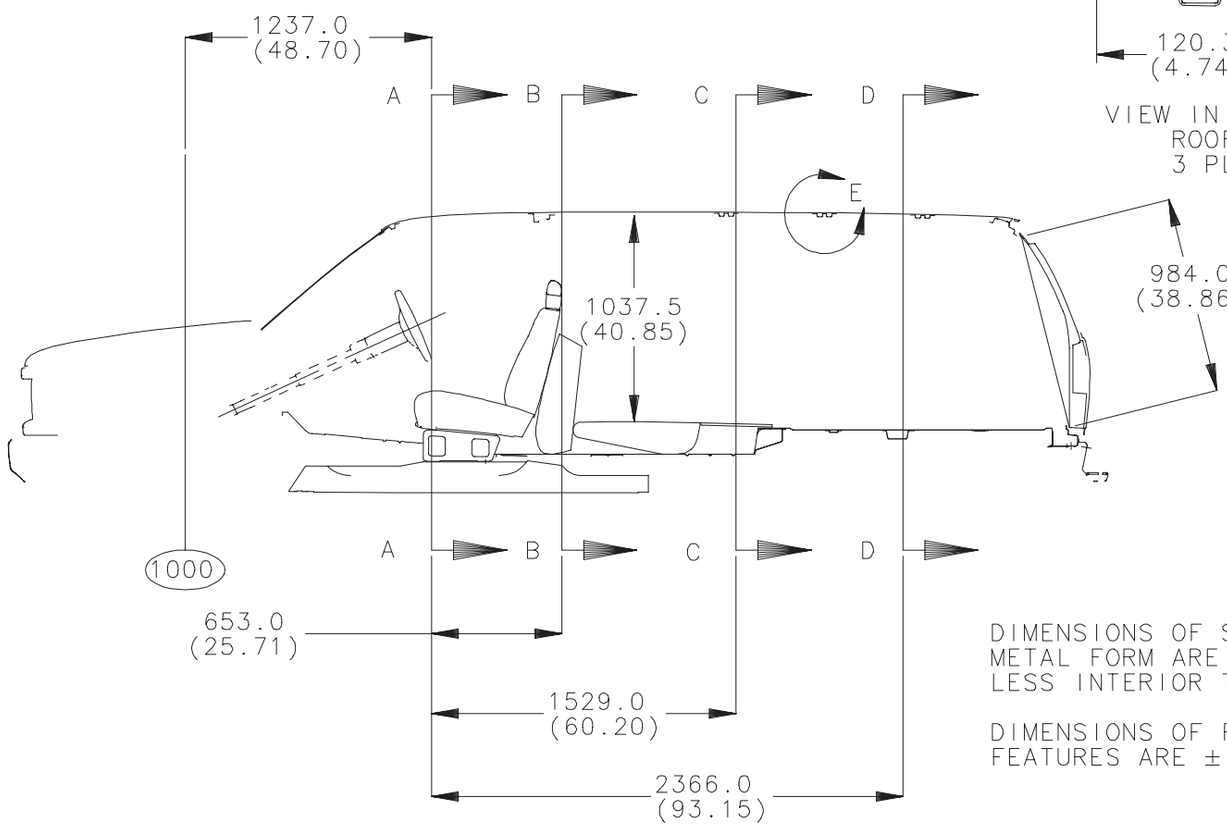
SECTION B–B



SECTION C–C

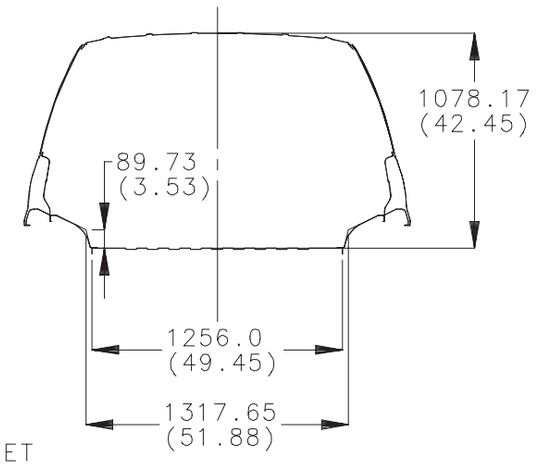


VIEW IN CIRCLE E
ROOF BOW
3 PLACES



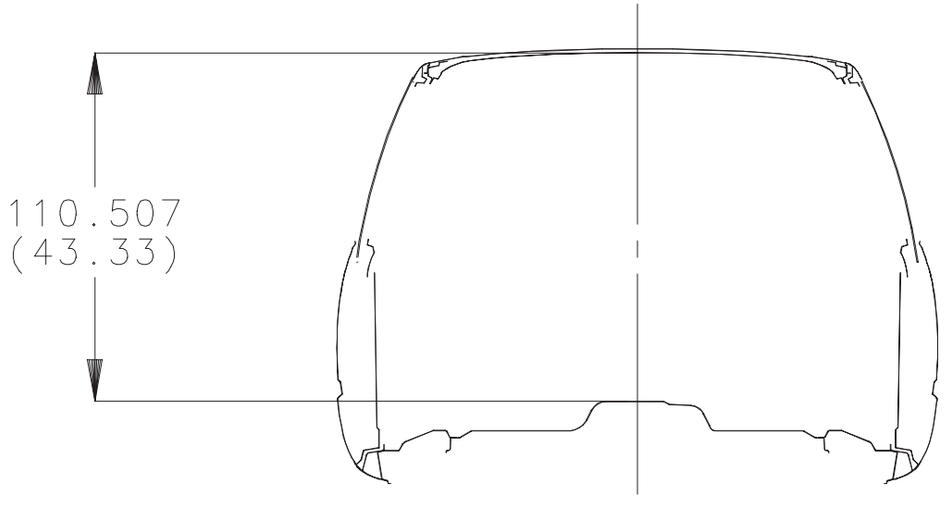
DIMENSIONS OF SHEET METAL FORM ARE LESS INTERIOR TRIM

DIMENSIONS OF FORM FEATURES ARE ± 5.0 MM

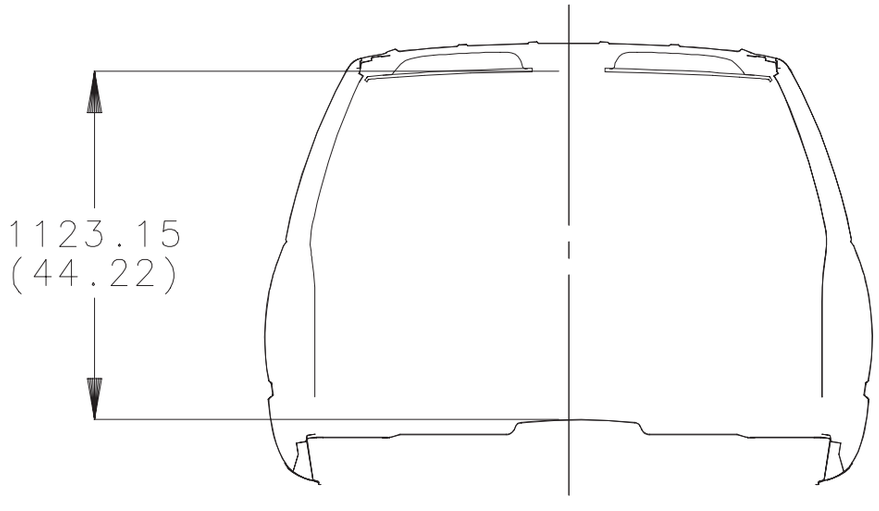


SECTION D–D

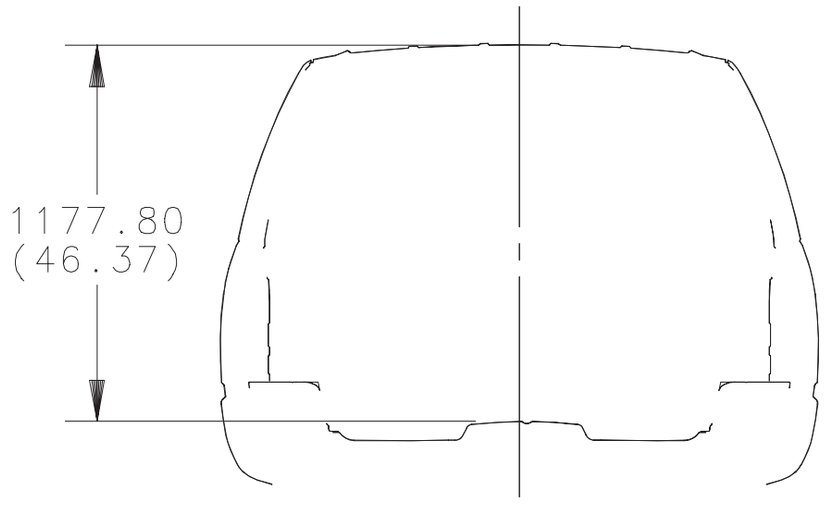
C/K (109/209)06 Suburban, Interior Trim



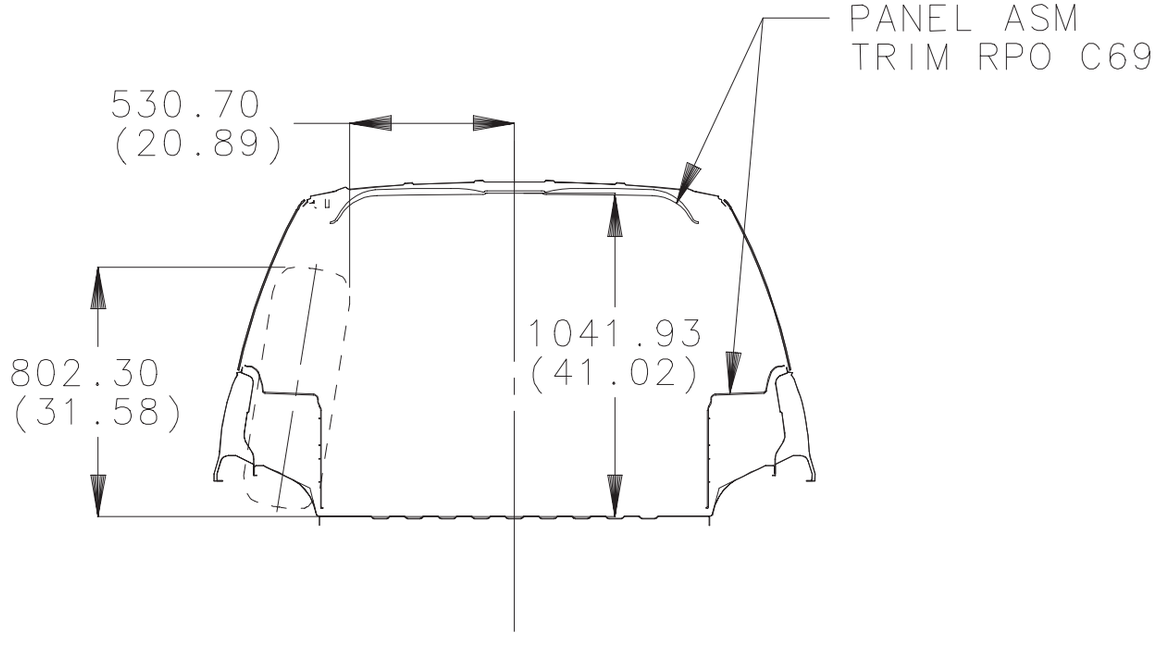
SECTION A–A



SECTION B–B



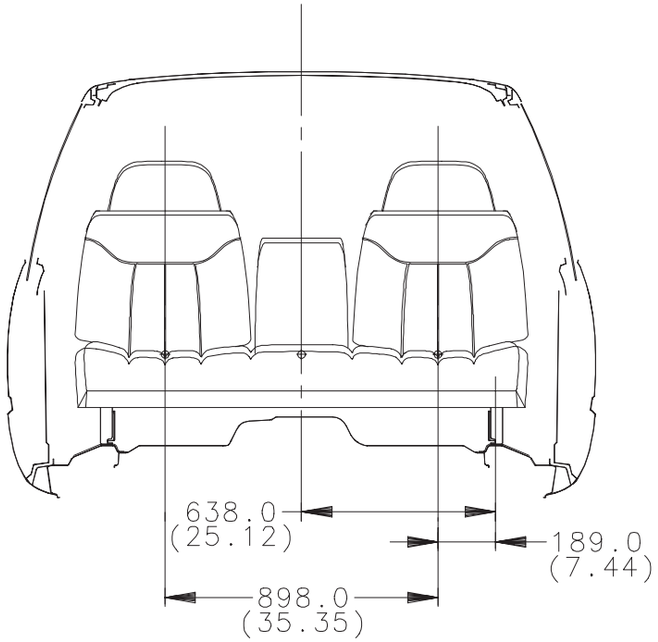
SECTION C–C



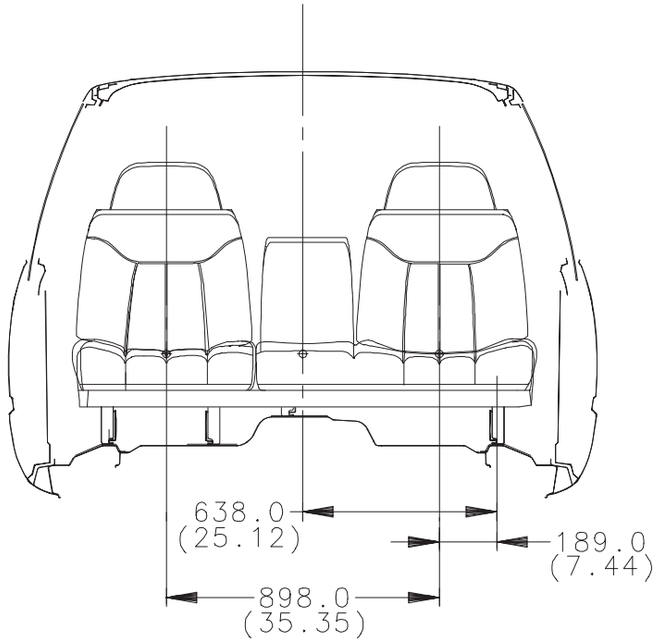
SECTION D–D

( ) = INCHES

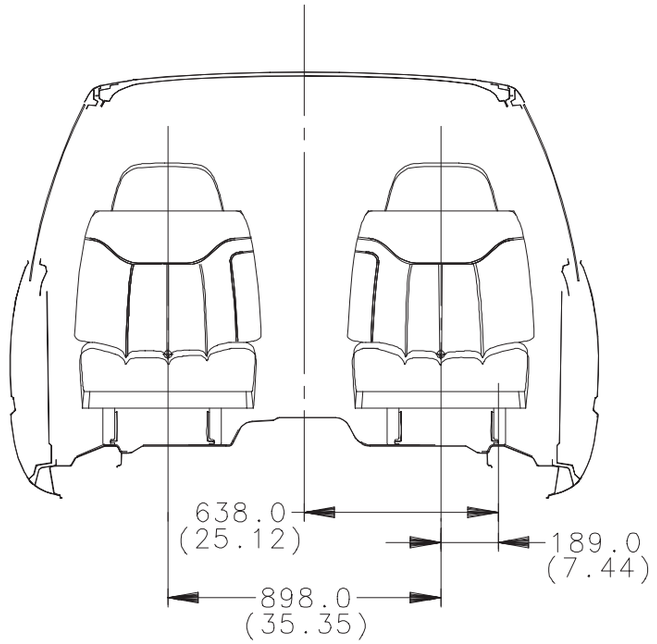
C/K (109/209)06 Suburban, Seating, Front



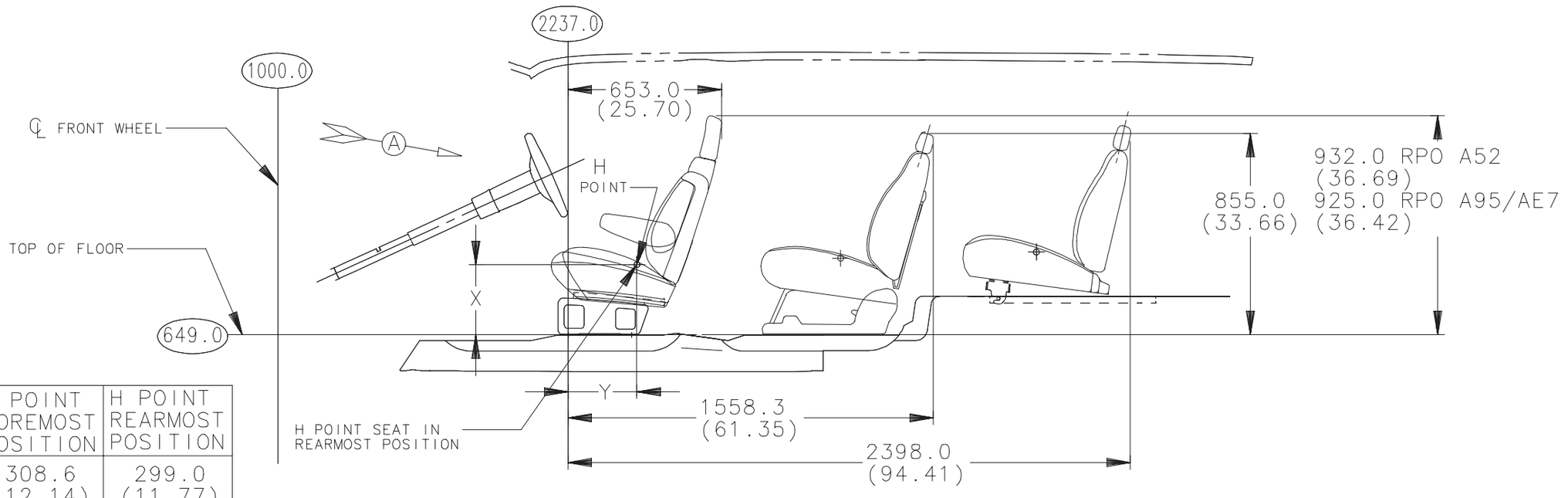
VIEW IN DIRECTION OF ARROW A
FRONT FULL BENCH SEAT RPO A52



VIEW IN DIRECTION OF ARROW A
FRONT SPLIT BENCH SEAT RPO AE7



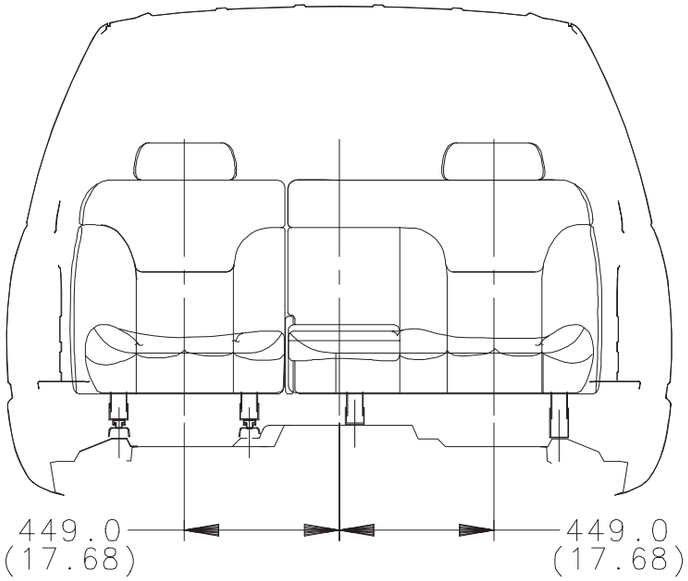
VIEW IN DIRECTION OF ARROW A
FRONT HI-BACK BUCKET SEATS RPO A95



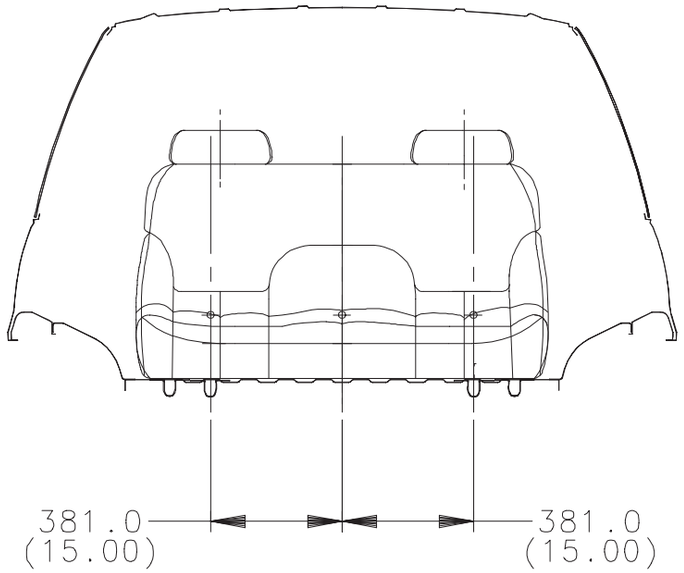
	H POINT FOREMOST POSITION	H POINT REARMOST POSITION
X	308.6 (12.14)	299.0 (11.77)
Y	119.2 (4.69)	294.0 (11.57)

( ) = INCHES

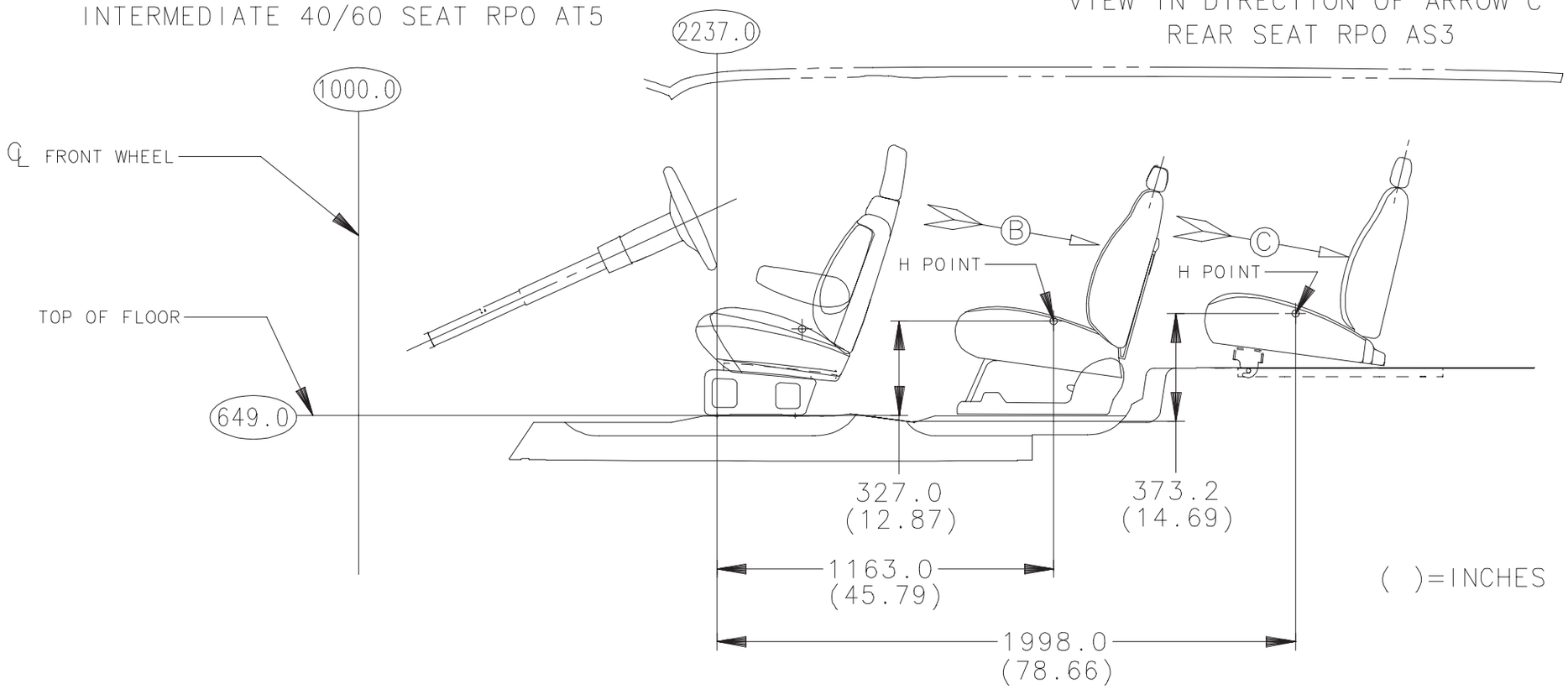
C/K (109/209)06 Suburban, Seating, Intermediate/Rear



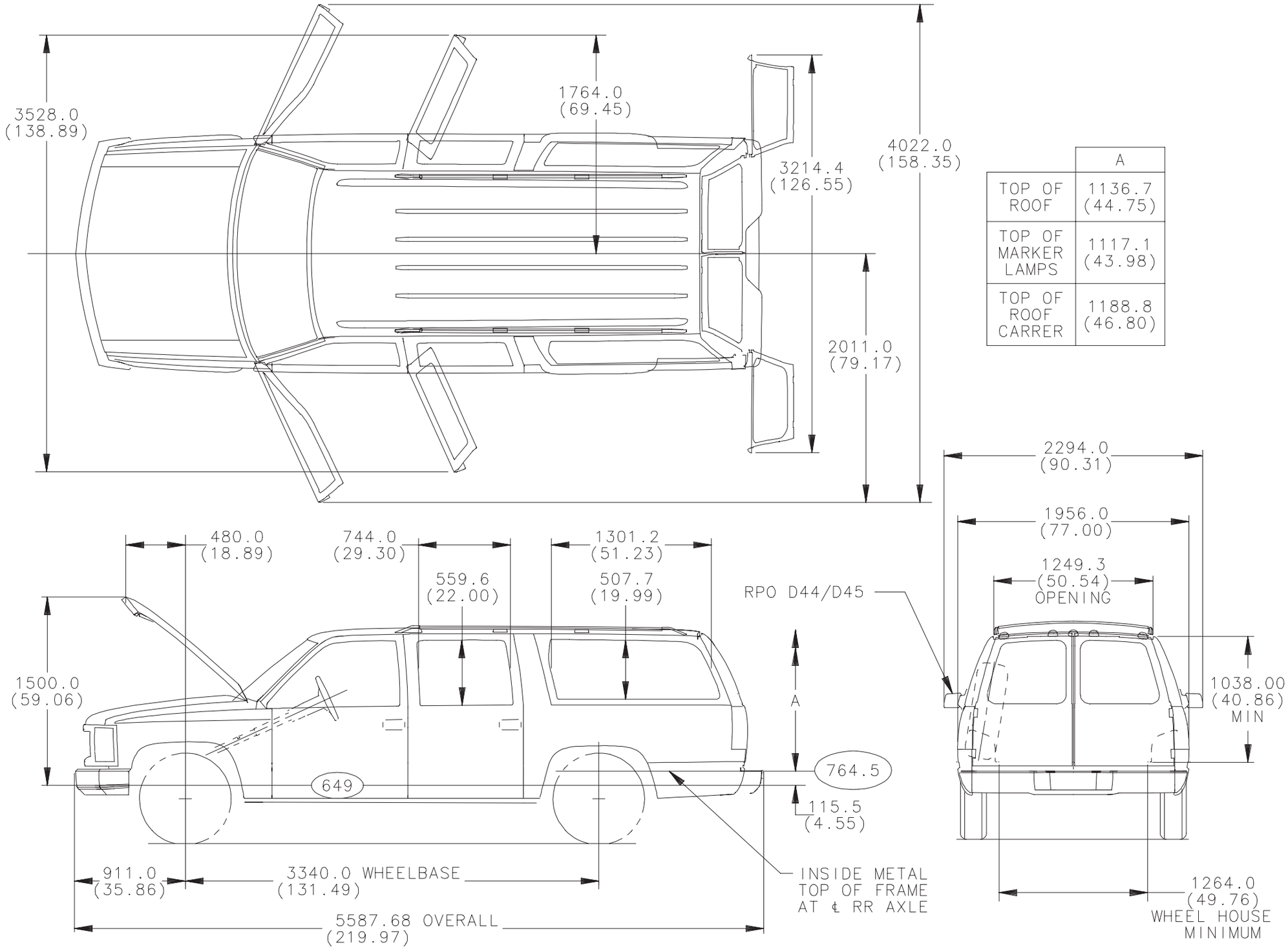
VIEW IN DIRECTION OF ARROW B
INTERMEDIATE 40/60 SEAT RPO AT5



VIEW IN DIRECTION OF ARROW C
REAR SEAT RPO AS3

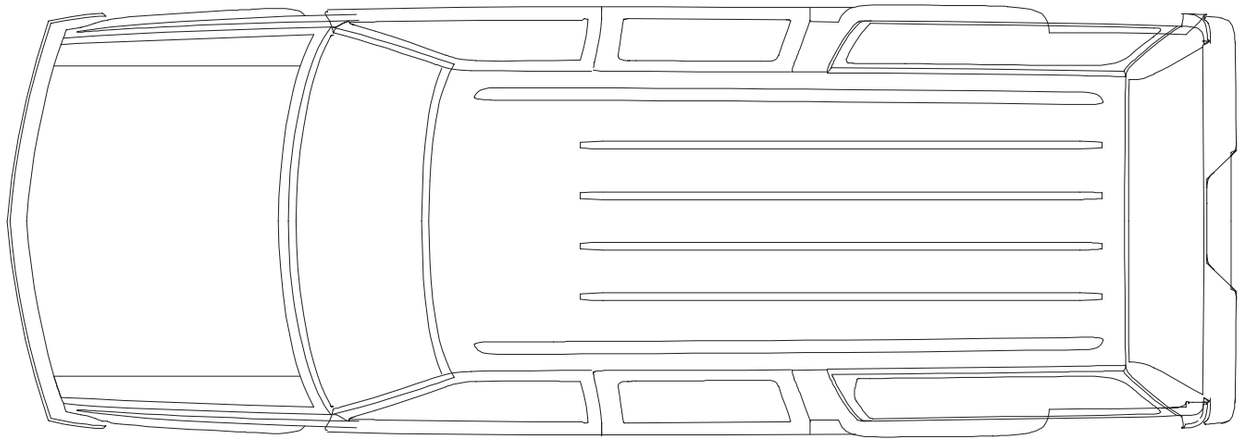


C/K (109/209)06 Suburban, Exterior, Cargo Doors



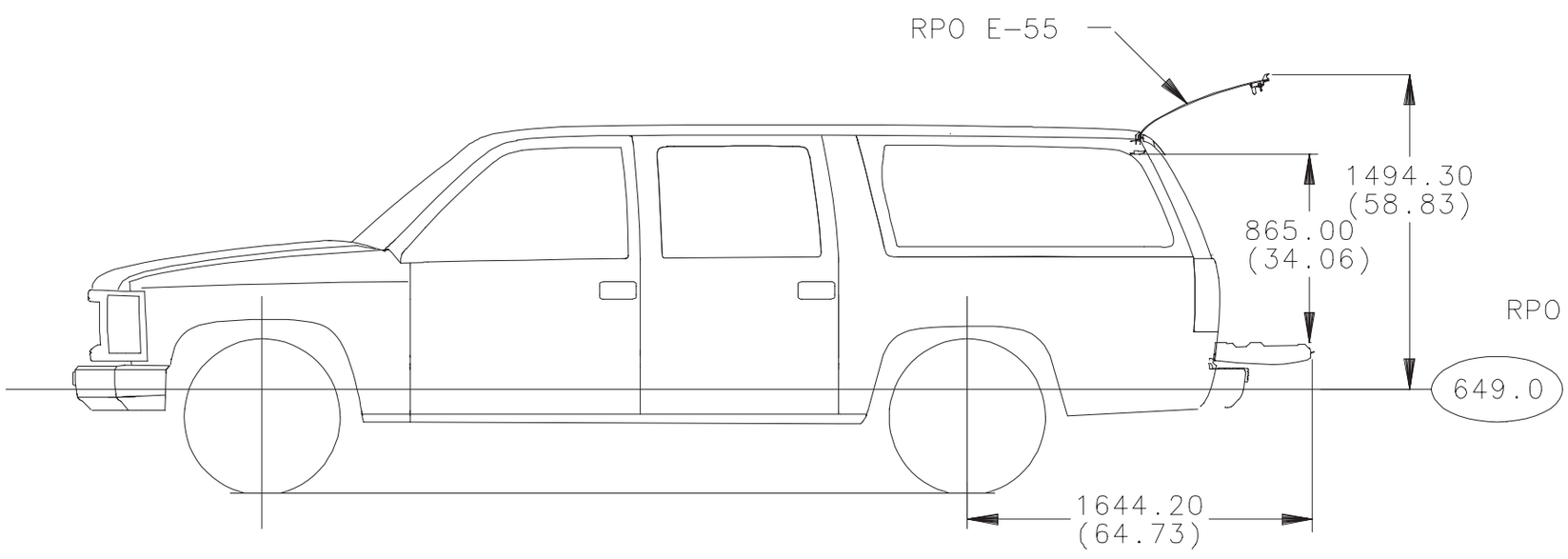
	A
TOP OF ROOF	1136.7 (44.75)
TOP OF MARKER LAMPS	1117.1 (43.98)
TOP OF ROOF CARRER	1188.8 (46.80)

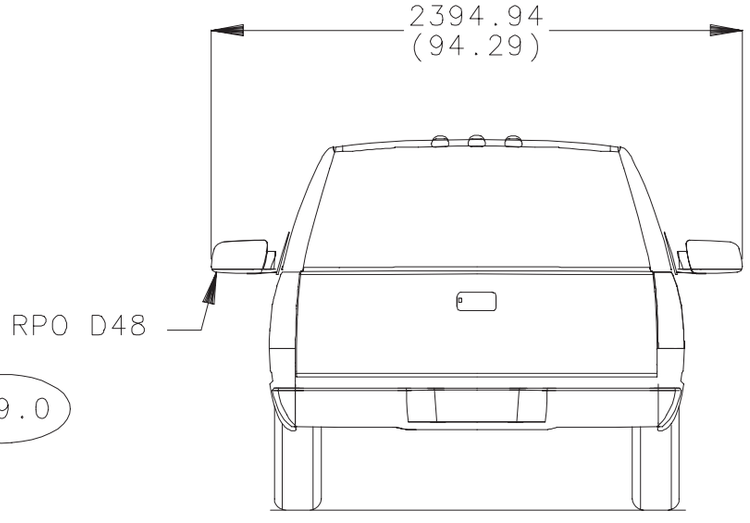
C/K (109/209)06 Suburban, Exterior, End Gate



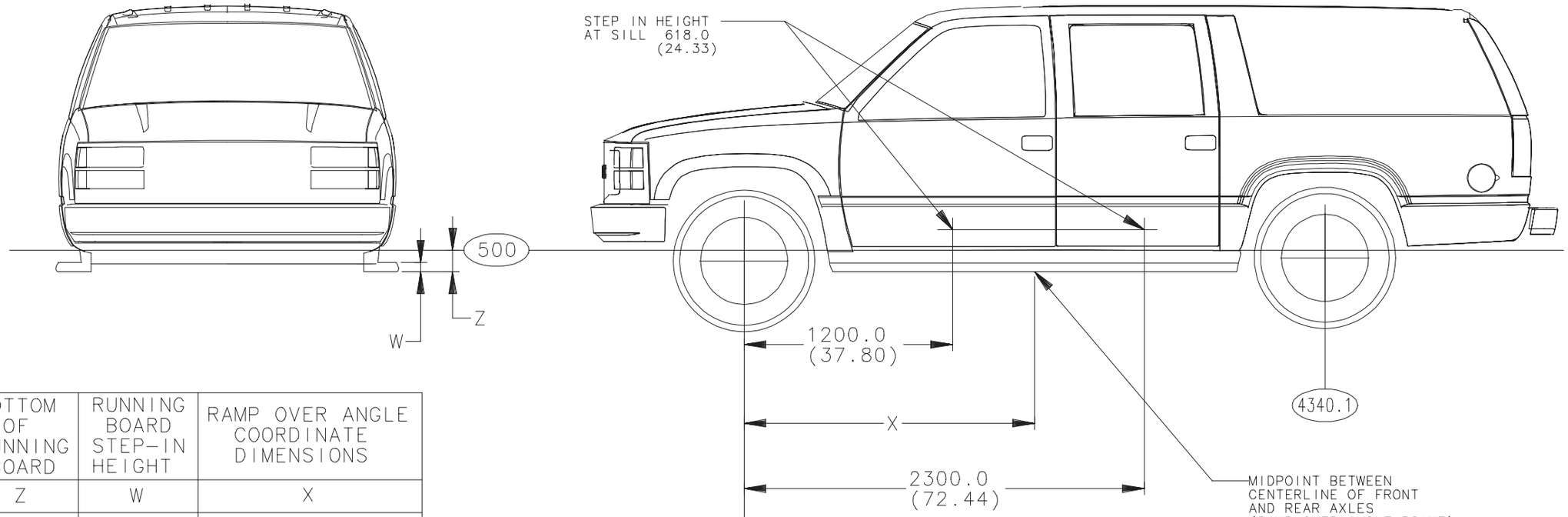
DIMENSIONS OF SHEET METAL FORM ARE LESS INTERIOR TRIM

DIMENSIONS OR FORM FEATURES ARE ± 5.0MM

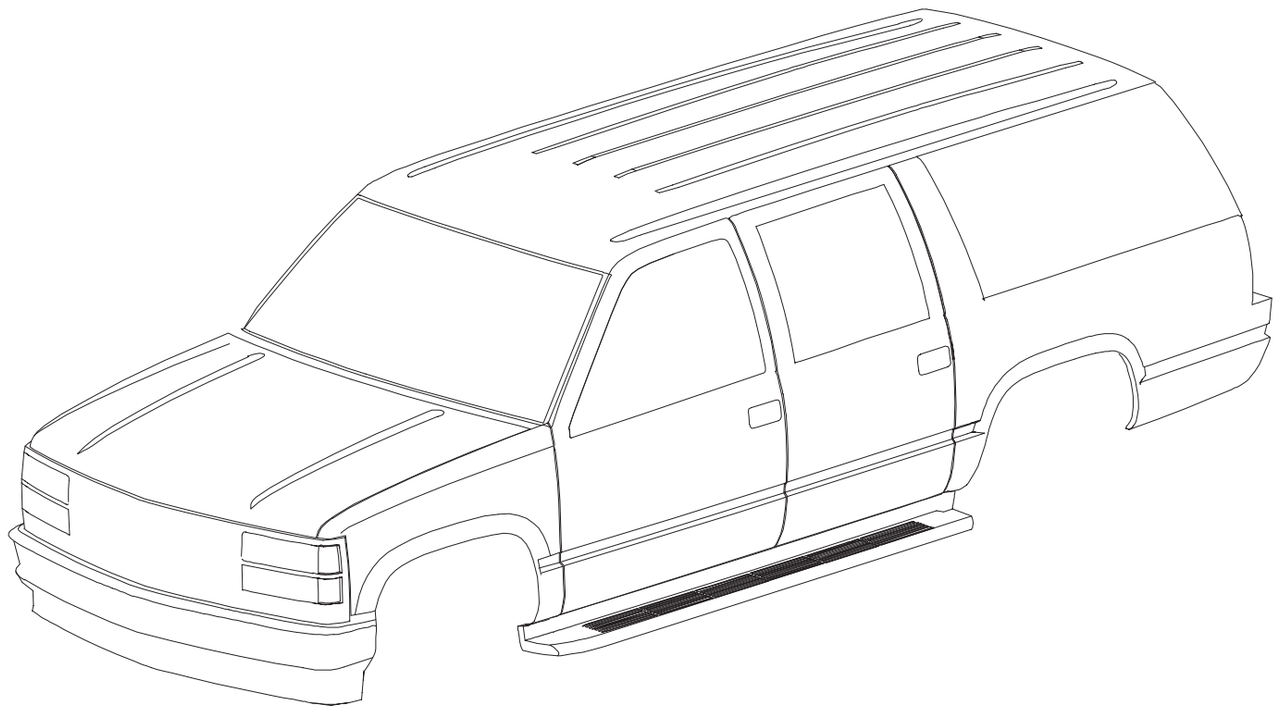




C/K (1/2)0906 Suburban, Side Step Running Boards, Option BVE

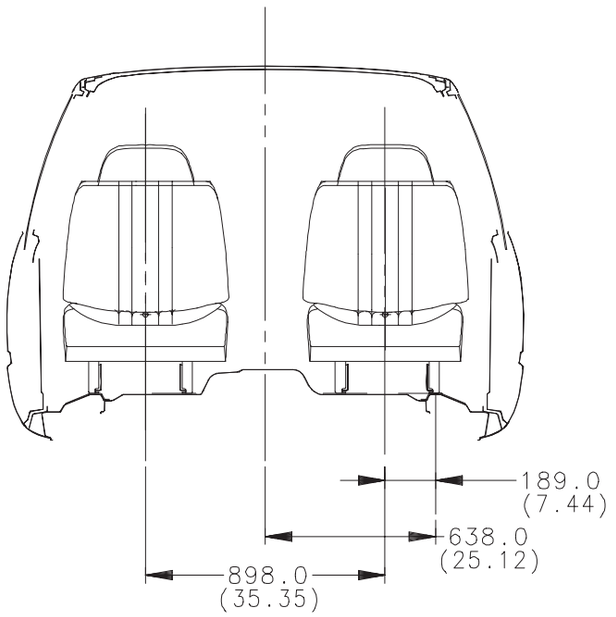


BOTTOM OF RUNNING BOARD	RUNNING BOARD STEP-IN HEIGHT	RAMP OVER ANGLE COORDINATE DIMENSIONS
Z	W	X
125.0 (4.92)	52.0 (2.05)	1670.05 (65.75)

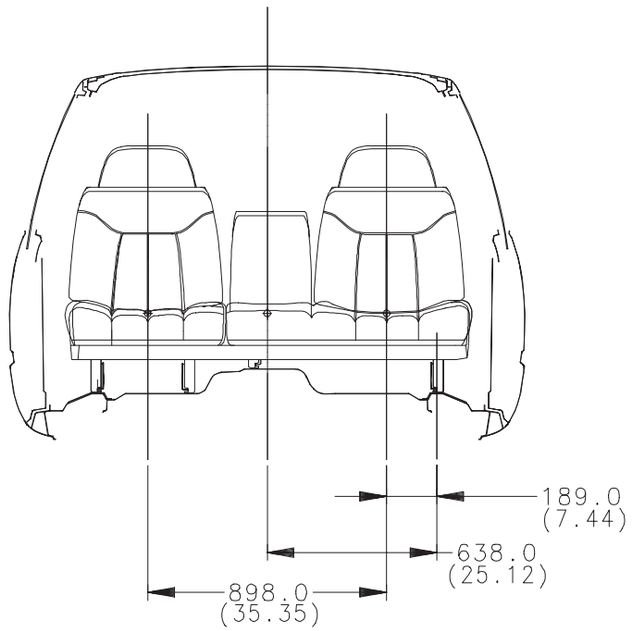


( ) = INCHES

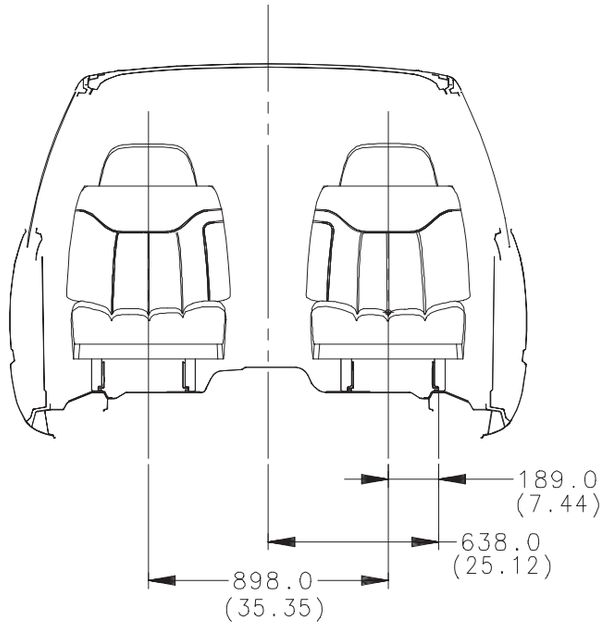
C/K 10516 Utility, Seating, Front/Rear



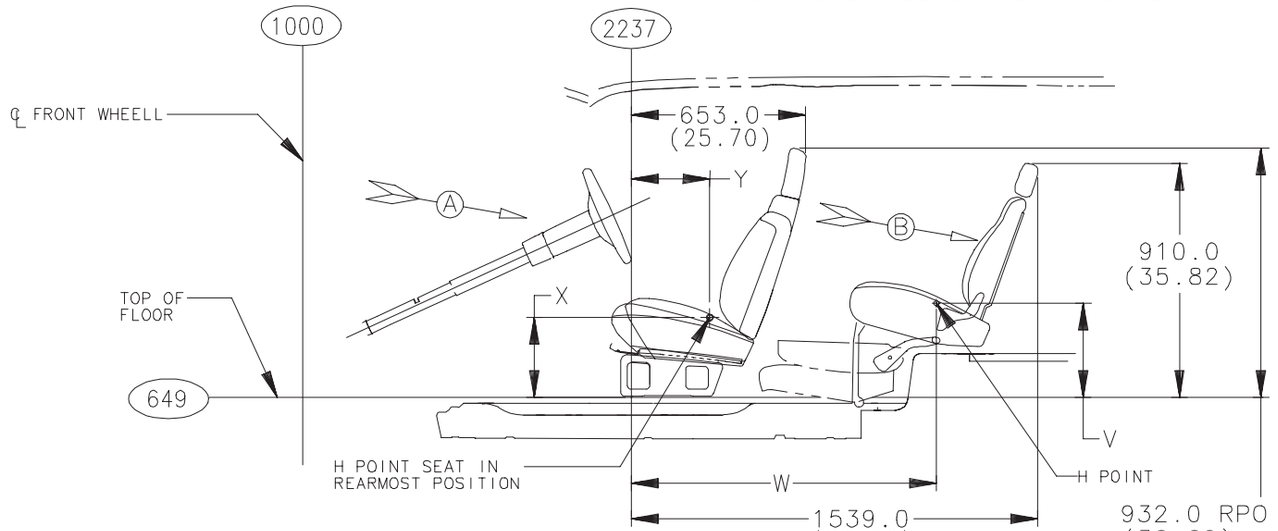
VIEW IN DIRECTION OF ARROW A
FRONT BUCKET SEATS RPO A50

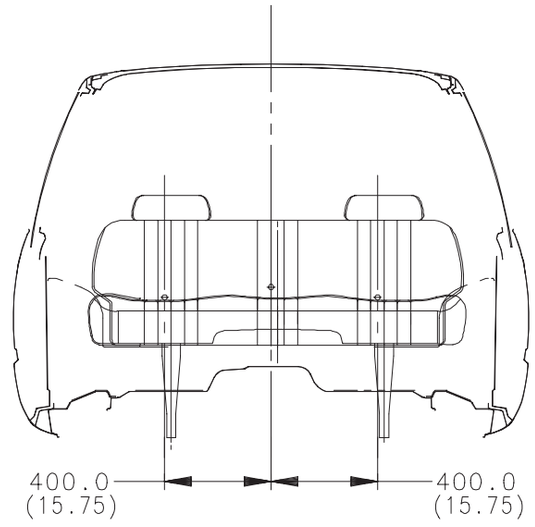


VIEW IN DIRECTION OF ARROW A
FRONT SPLIT BENCH SEAT RPO AE7



VIEW IN DIRECTION OF ARROW A
FRONT HI-BACK BUCKET SEATS RPO A95





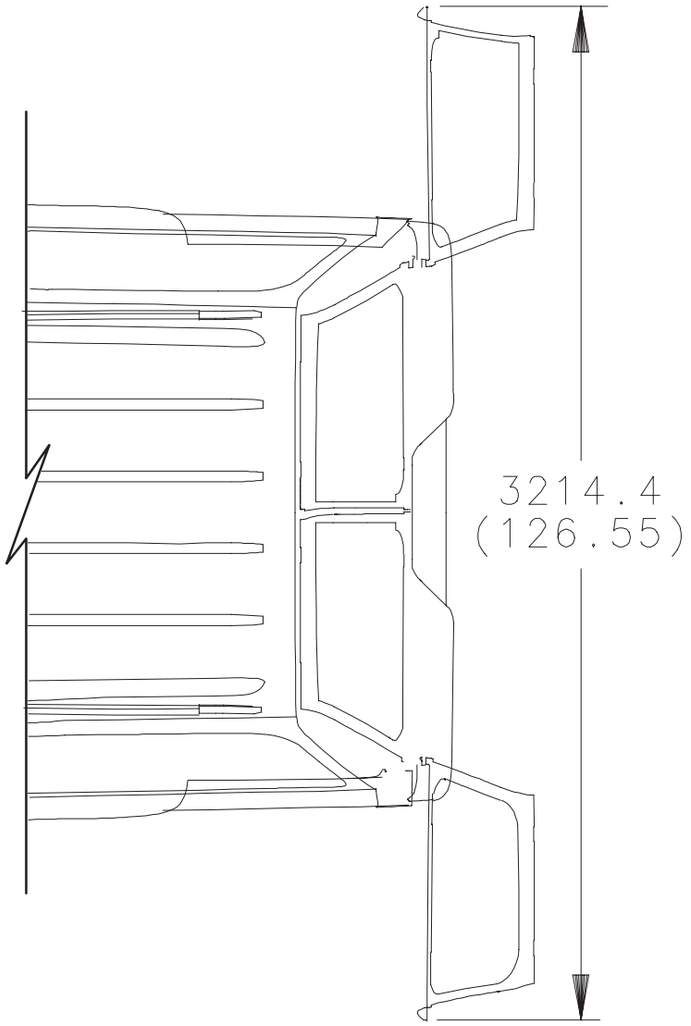
VIEW IN DIRECTION OF ARROW B
REAR SEAT RPO AM7

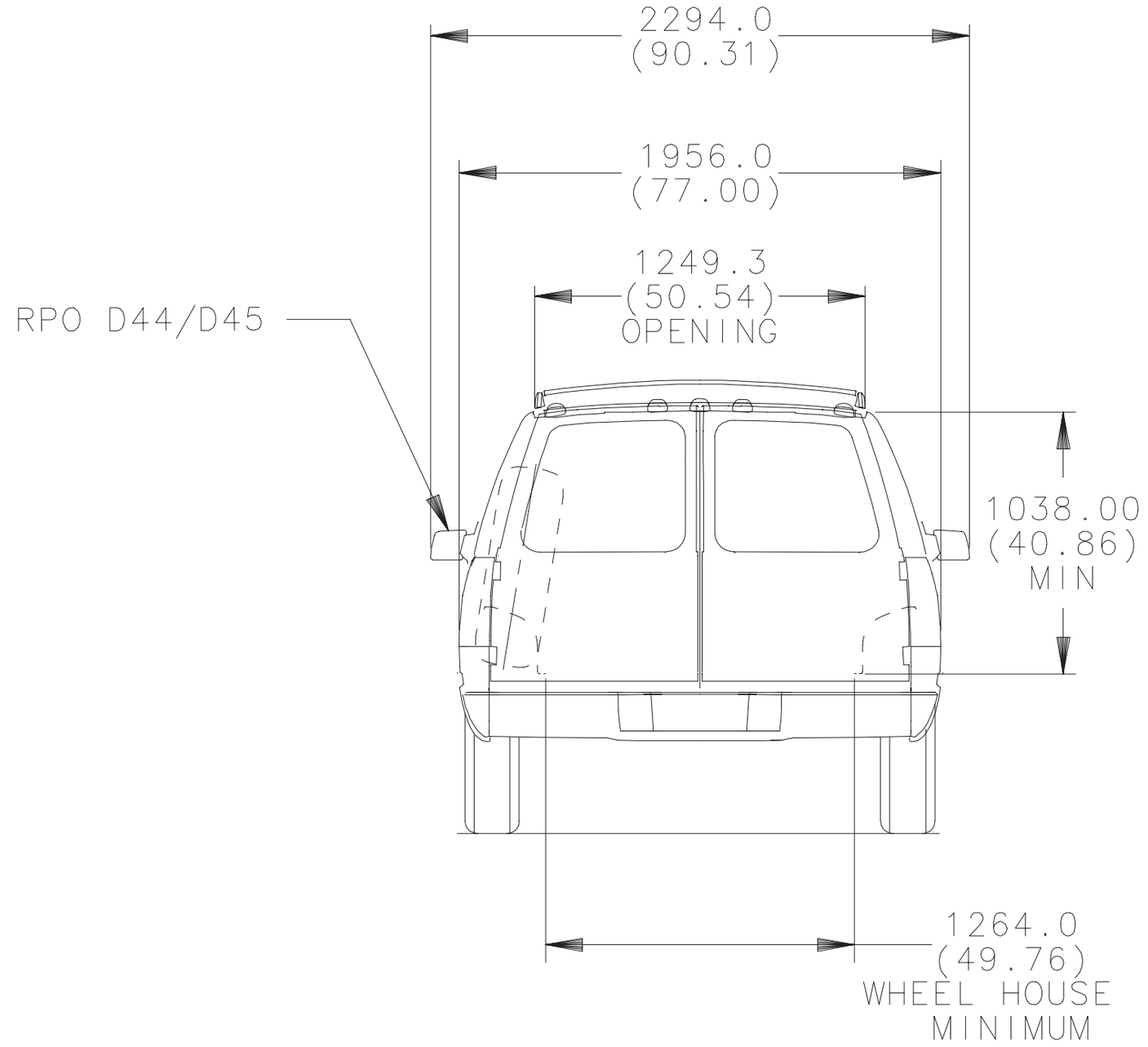
	H POINT FOREMOST POSITION	H POINT REARMOST POSITION
X	308.6 (12.14)	299.0 (11.77)
Y	119.2 (4.69)	294.0 (11.57)

	H POINT FOREMOST POSITION	H POINT REARMOST POSITION
V	353.0 (13.90)	392.0 (15.43)
W	1146.0 (45.12)	1161.5 (45.73)

( ) = INCHES

C/K 10516 Utility, Exterior, Cargo Doors

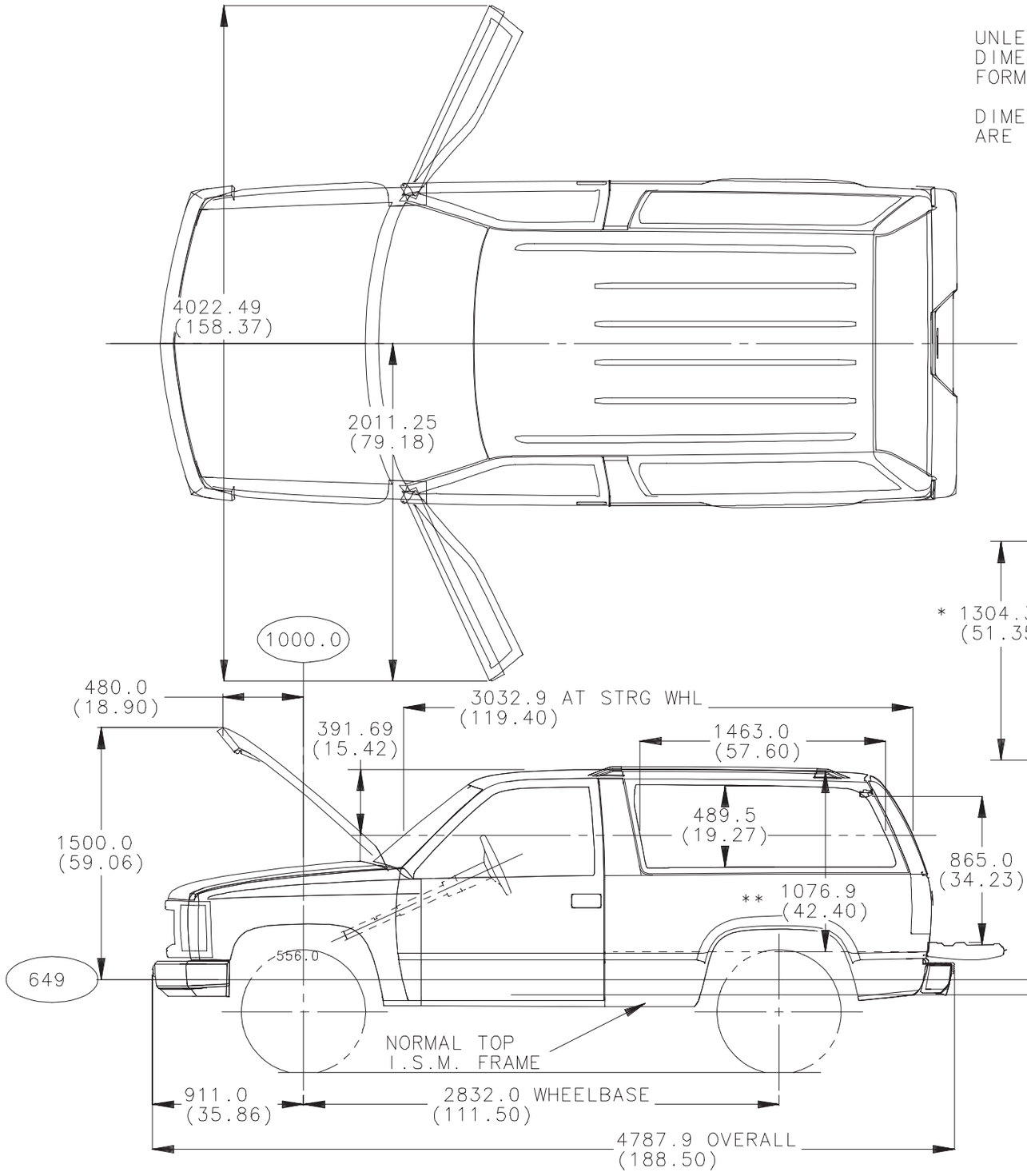


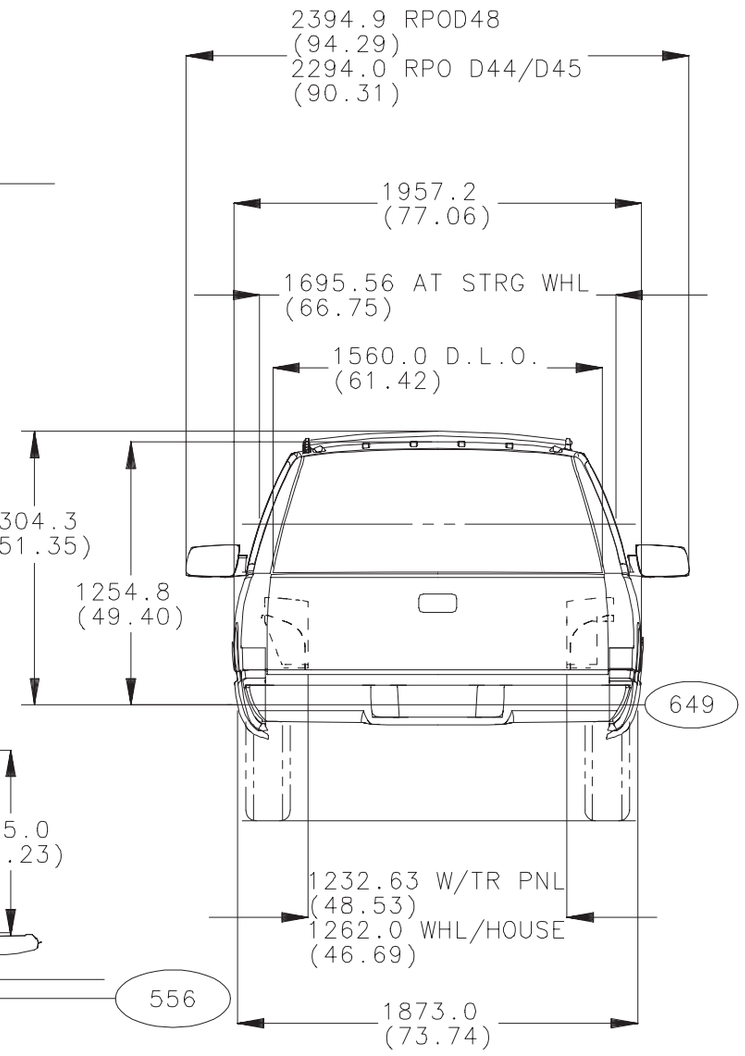


C/K 10516 Utility, Exterior, End Gate

UNLESS OTHERWISE SPECIFIED
DIMENSIONS OF SHEET METAL
FORM ARE LESS INTERIOR TRIM.

DIMENSIONS OF FORM FRATURES
ARE ±5.0MM

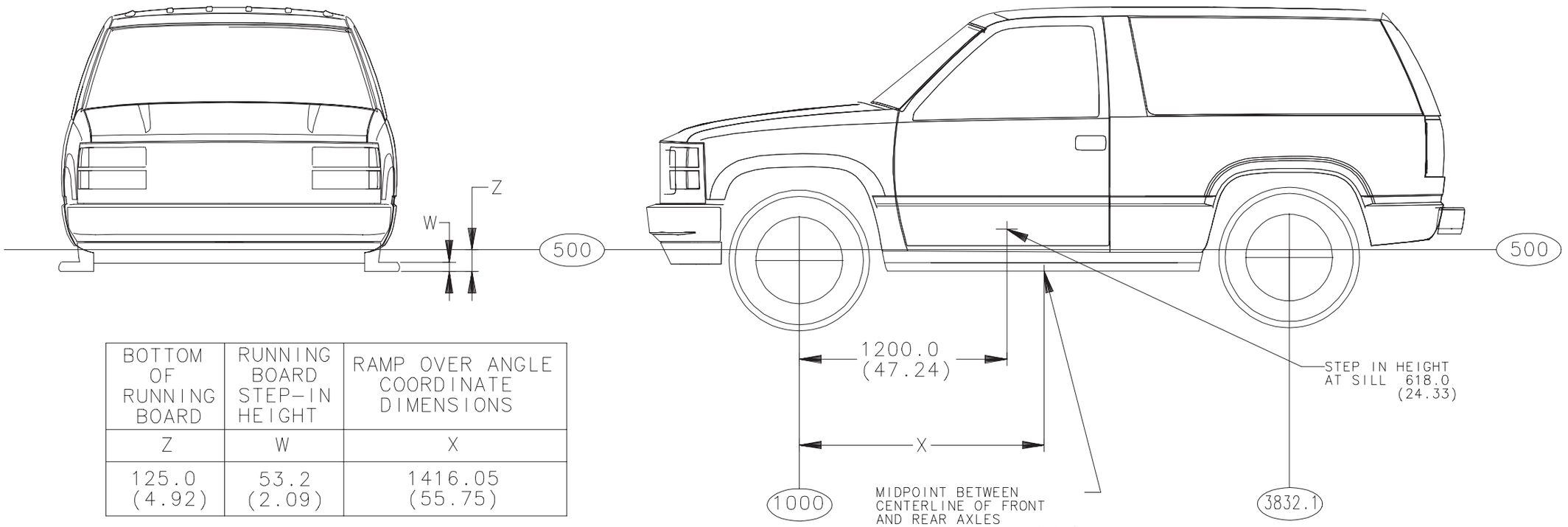




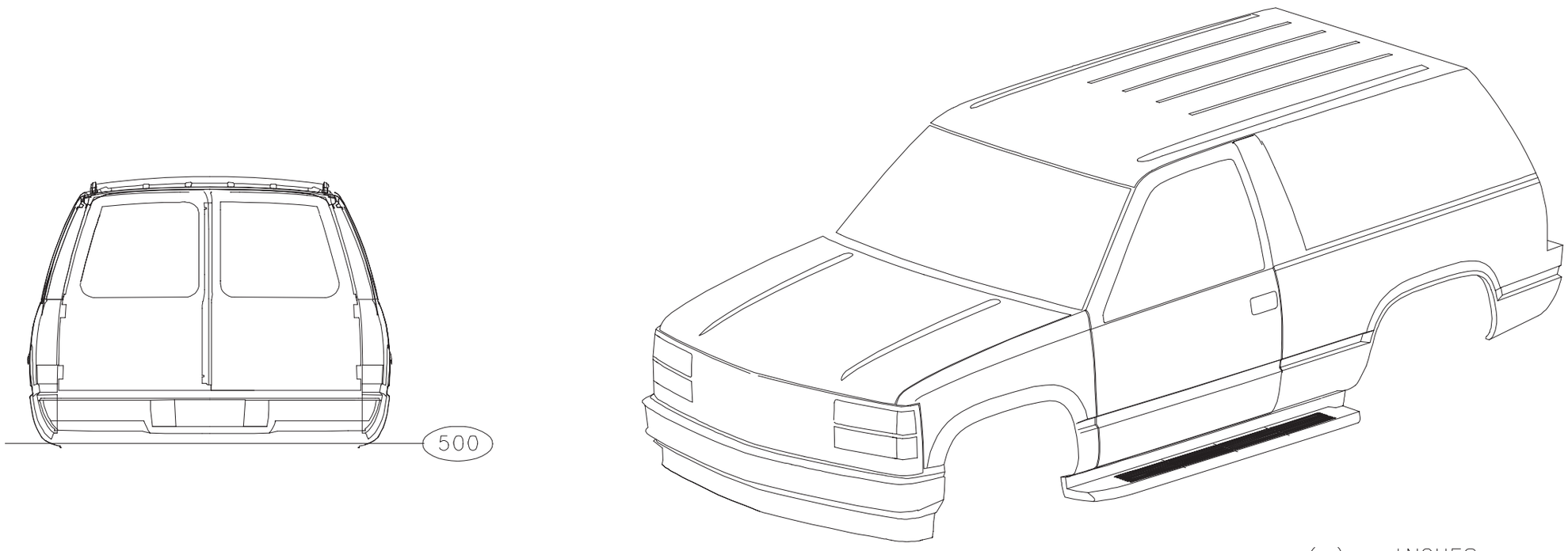
* MAX HEIGHT ROOF CARRIER

** MAX CARGO HEIGHT

C/K 10516 Utility, Side Step Running Boards, Option BVE

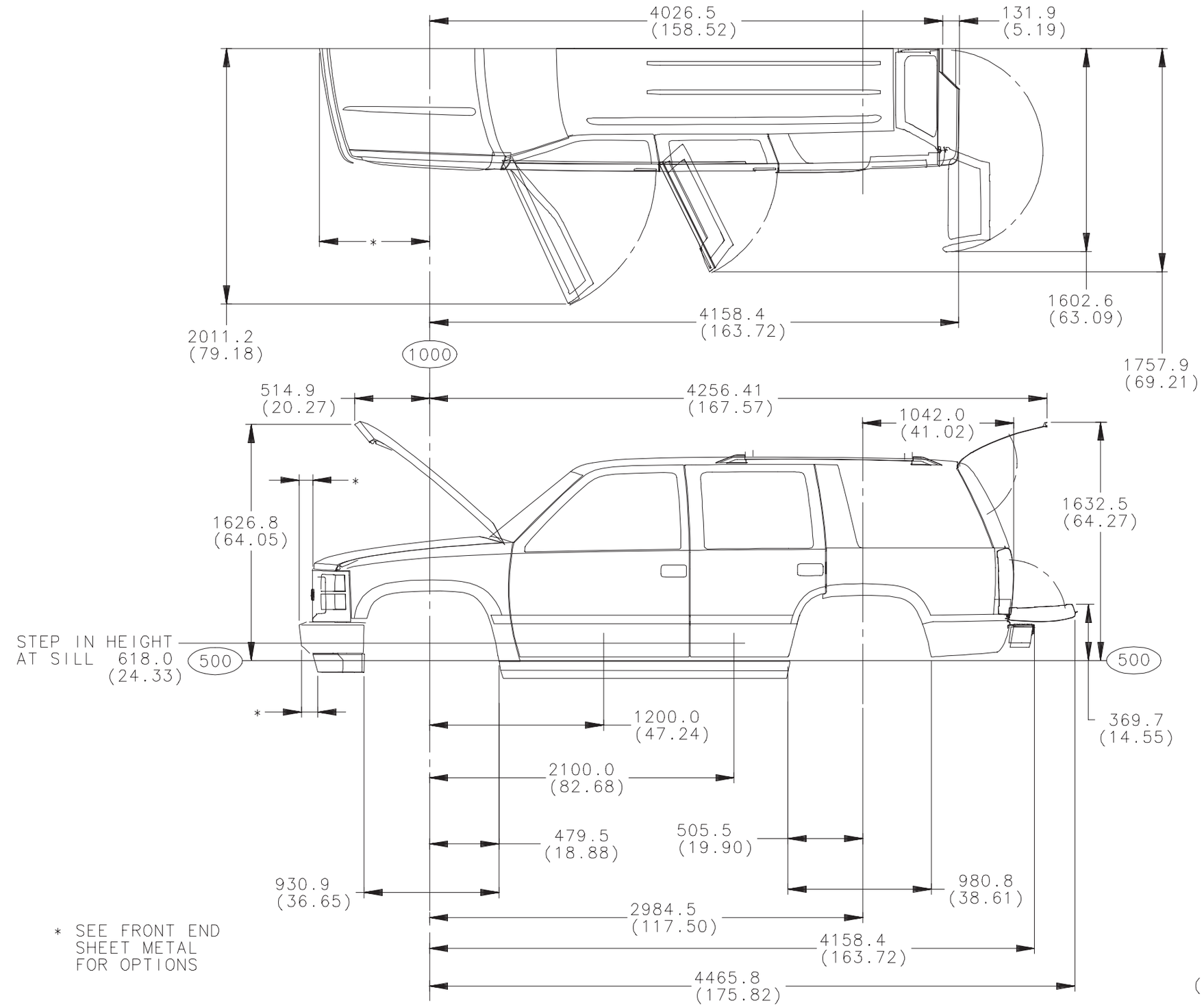


BOTTOM OF RUNNING BOARD	RUNNING BOARD STEP-IN HEIGHT	RAMP OVER ANGLE COORDINATE DIMENSIONS
Z	W	X
125.0 (4.92)	53.2 (2.09)	1416.05 (55.75)

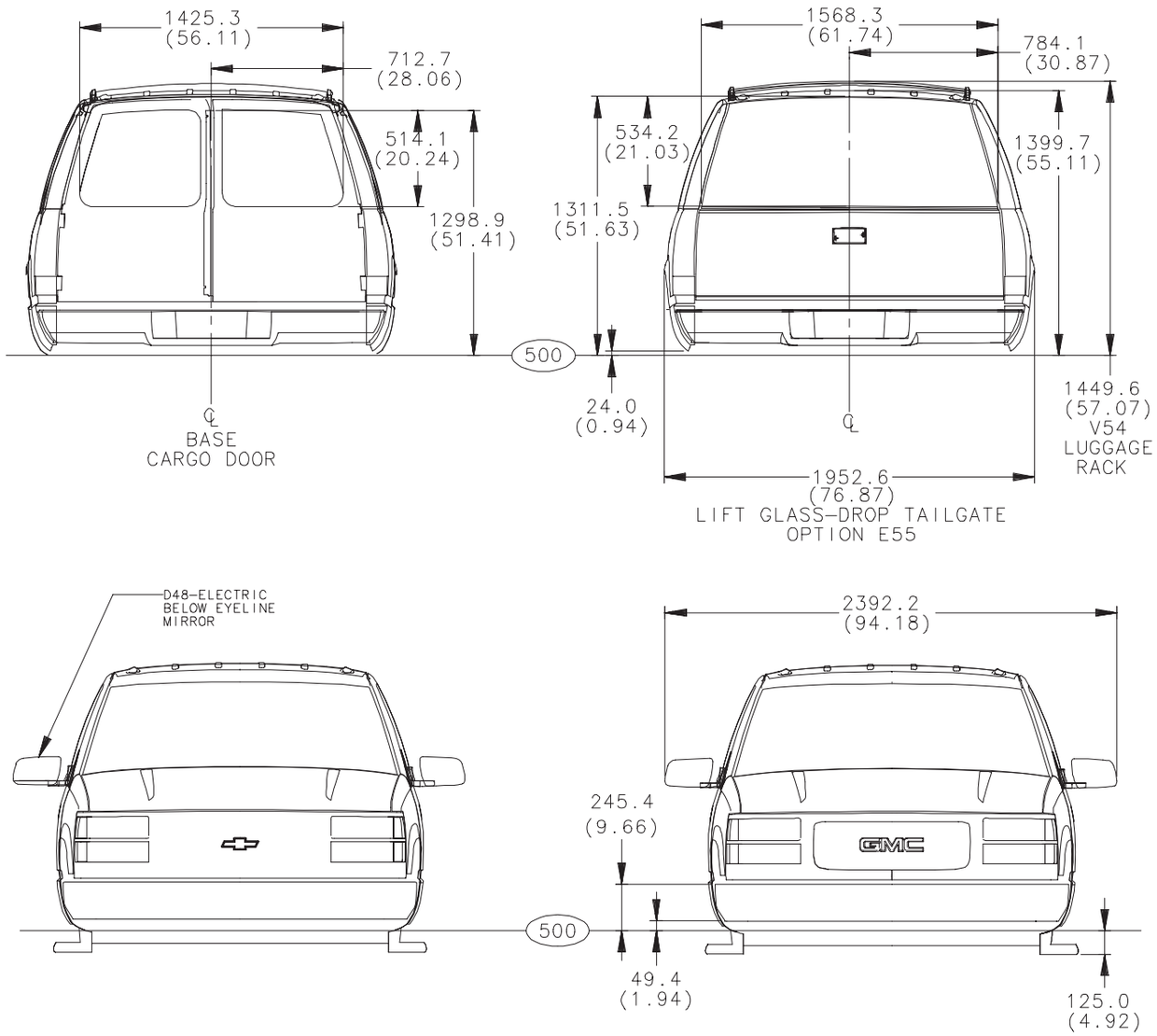


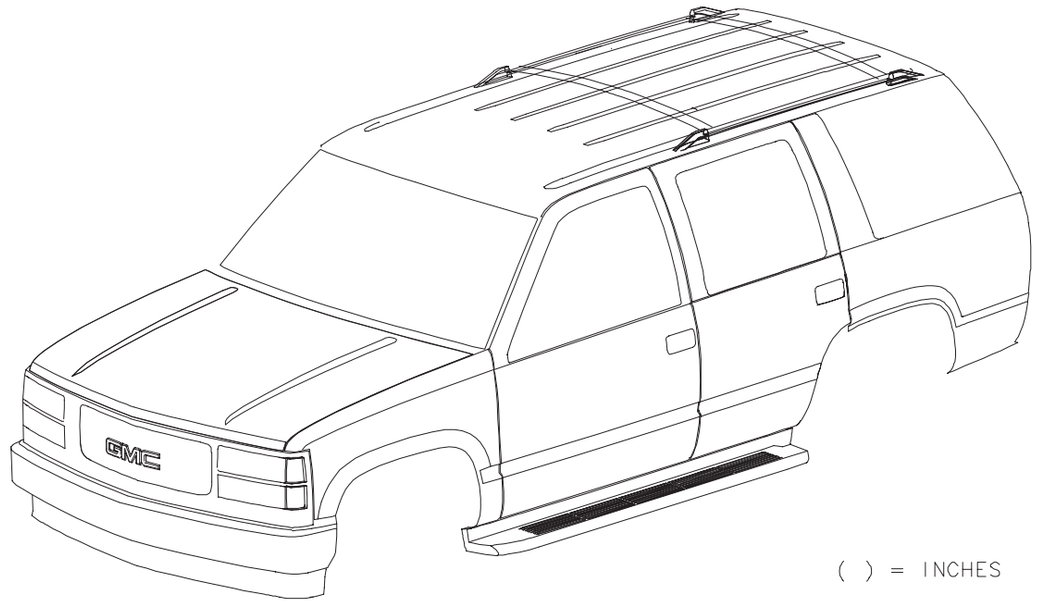
( ) = INCHES

C/K 10706 Utility, Exterior



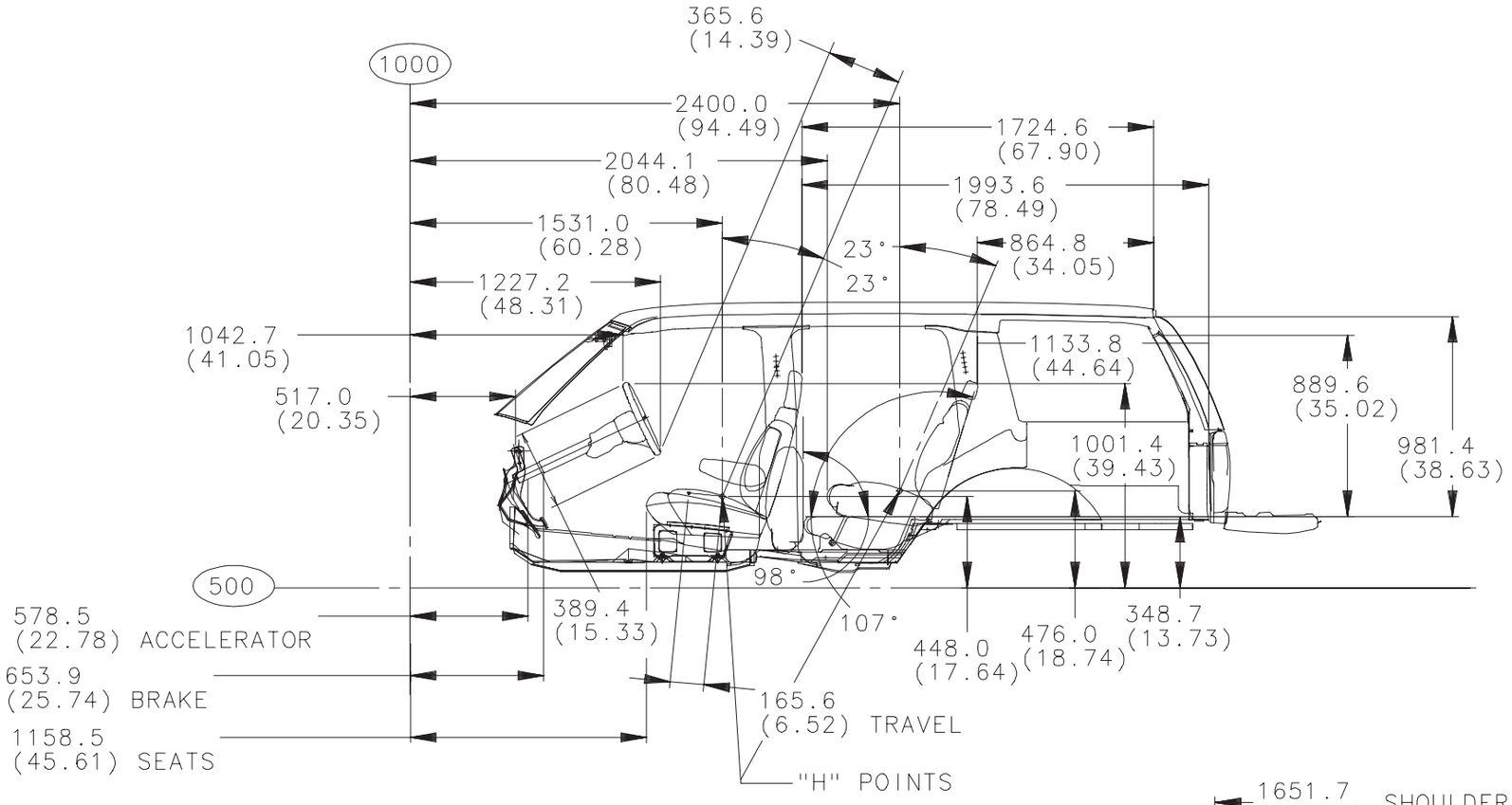
C/K 10706 Utility, Exterior

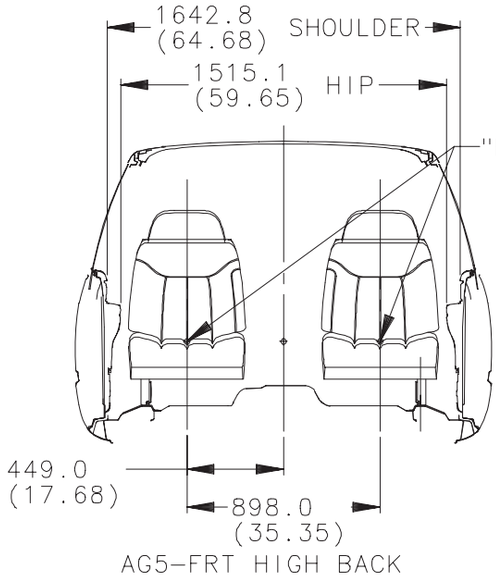




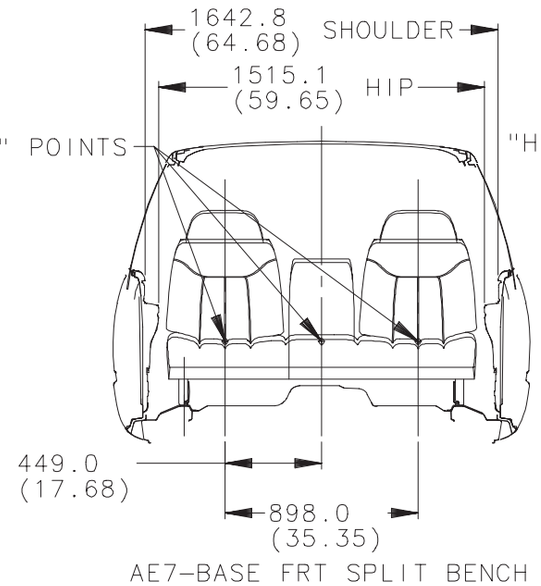
( ) = INCHES

C/K 10706 Utility, Seating Arrangement

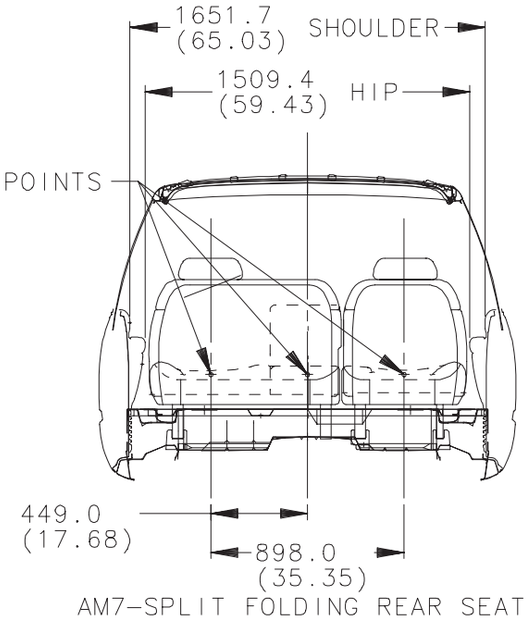




AG5–FRT HIGH BACK
BUCKET SEATS

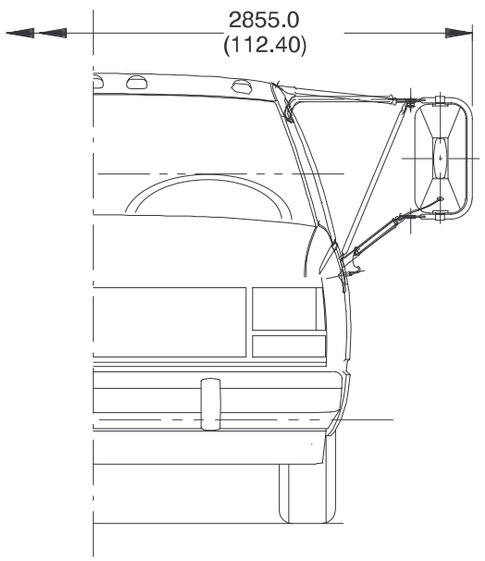


AE7–BASE FRT SPLIT BENCH

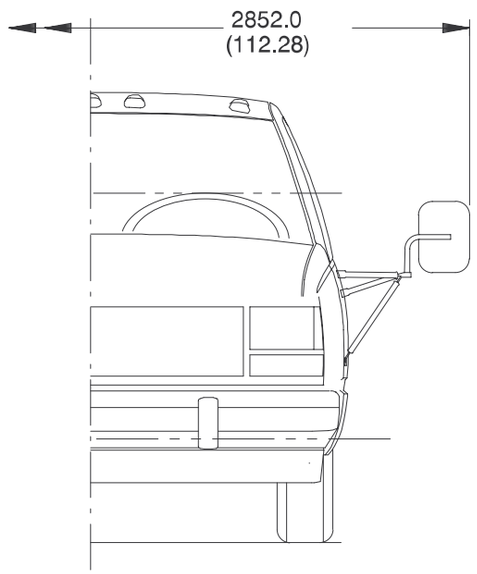


AM7–SPLIT FOLDING REAR SEAT
(REAR VIEW)

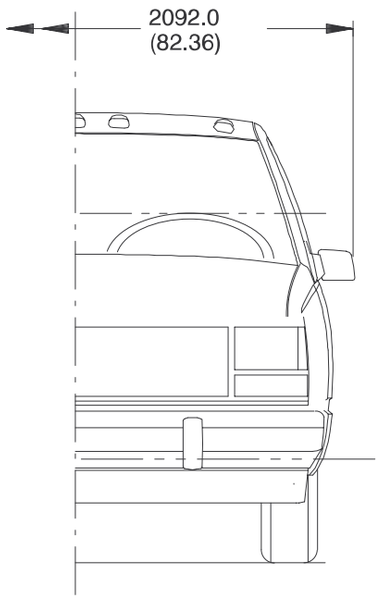
C/K (1/2/3)0000 Mirror Options, General Arrangement



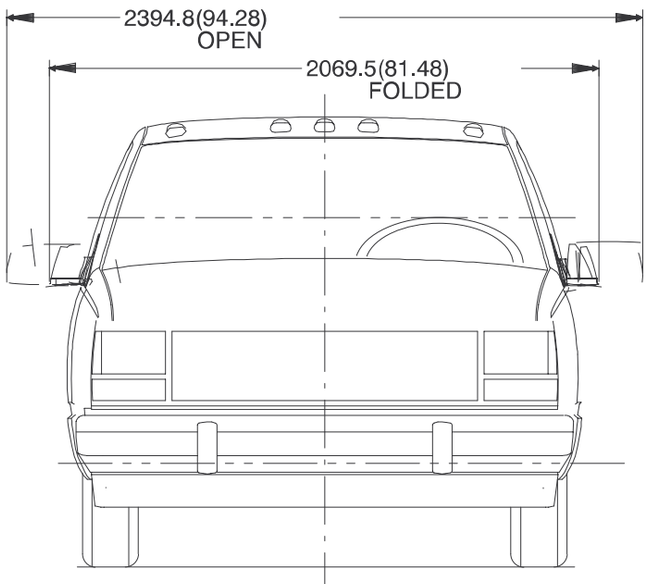
*OPTION DG5 AVAILABLE CK 20903,
30903,31003,31403,31803 ONLY
NOTE: MIRRORS SHIPPED LOOSE



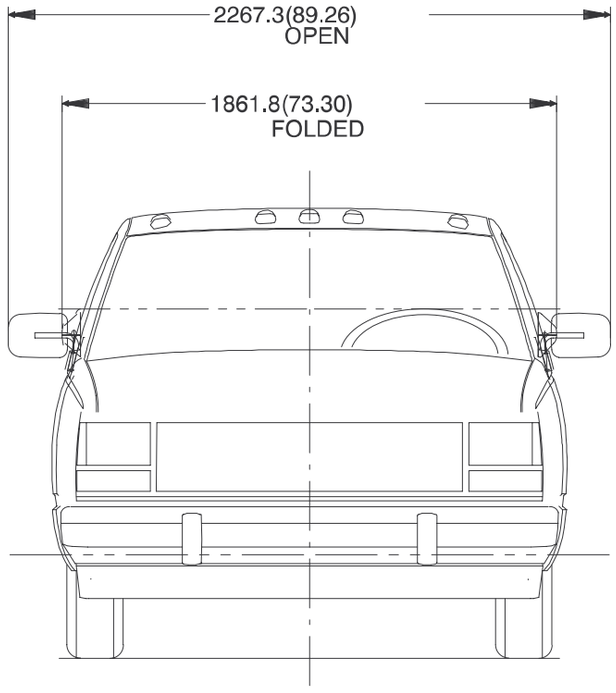
*DF2 AVAILABLE
NOTE: MIRRORS SHIPPED LOOSE



*OPTION DR1 FOR CK 10703 ONLY



*BASE D48 BASE ON CK10706
D48 (ELECTRIC) & DE2 (MANUAL)

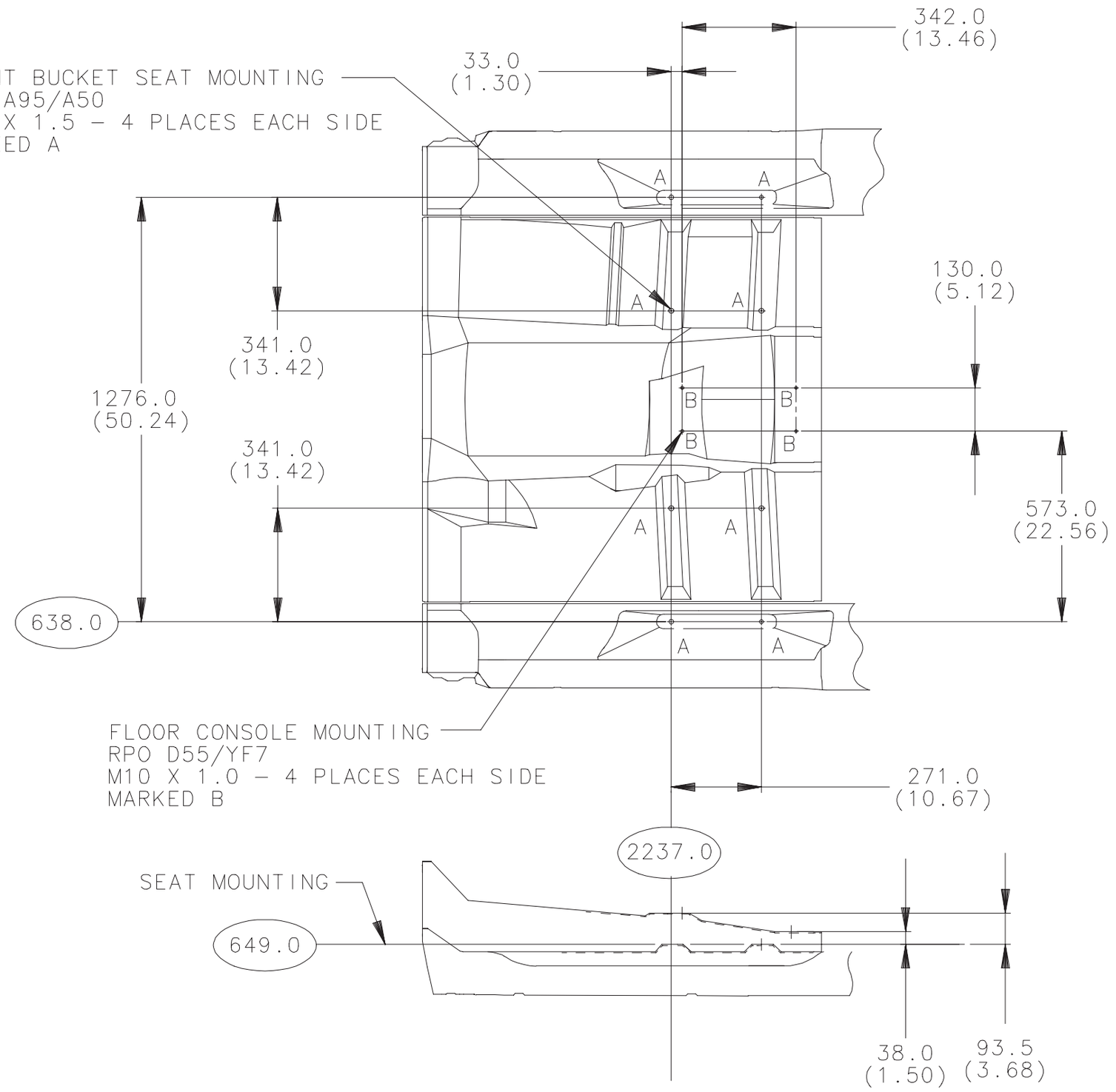


*OPTION D44 BASE FOR MODEL 31803 ONLY
OPTION D44 (PAINTED) OPTION D45 (STAINLESS)

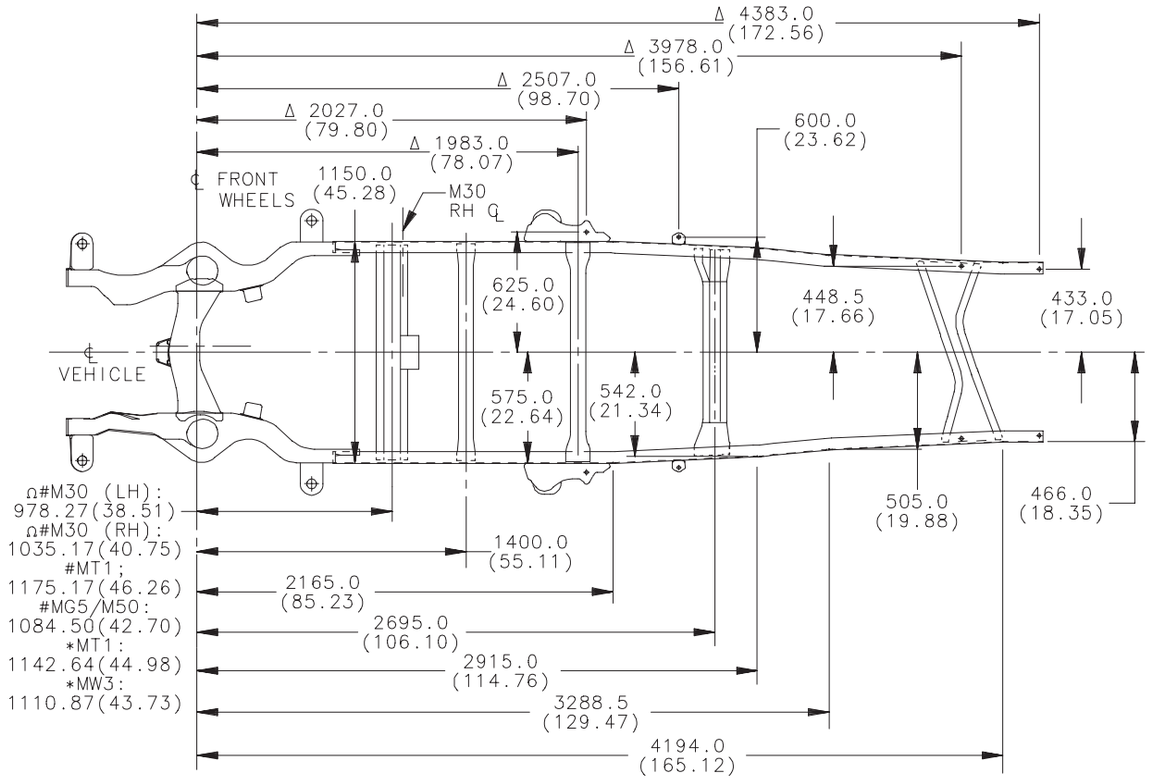
* CHECK WITH DEALERS FOR OPTION AVAILABILITY

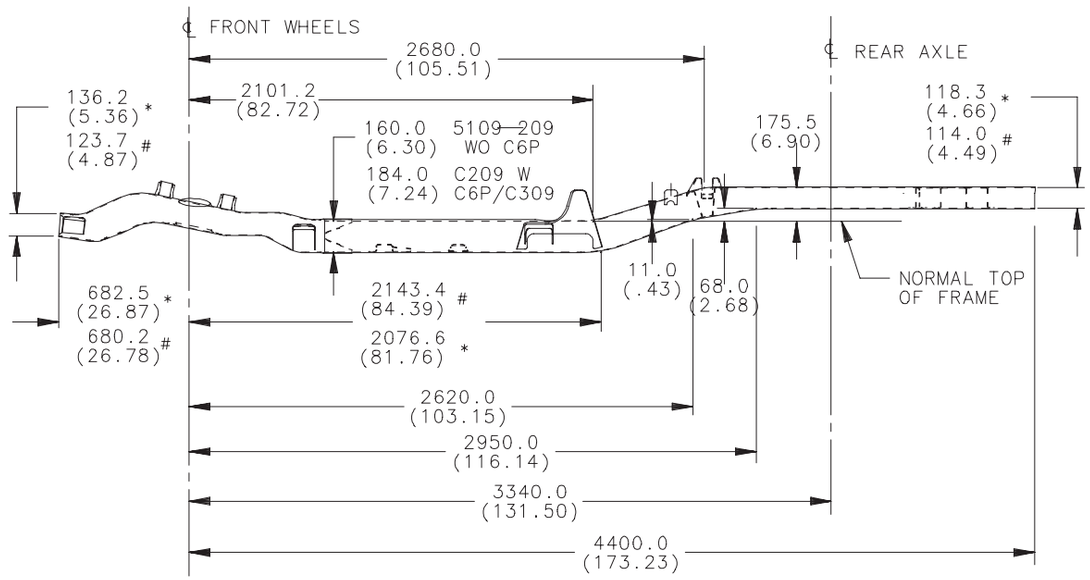
( ) = INCHES

C/K Truck, Front Floor Seat Mounting



C 30903 Regular Cab Pickup, Crossmember Arrangement





* = C209 W C6P / 309
\# = C109 /209 WO C6P

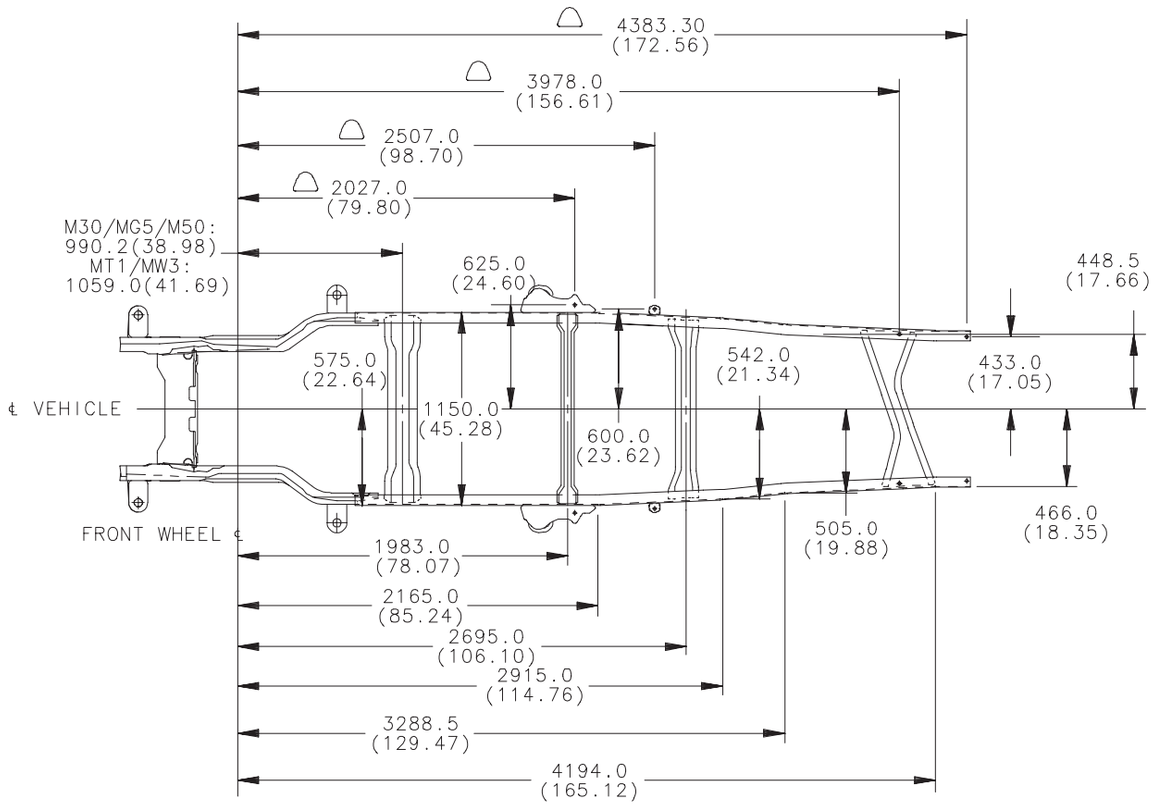
FRAME OUTLINE DIMENSIONS ARE SYMMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE

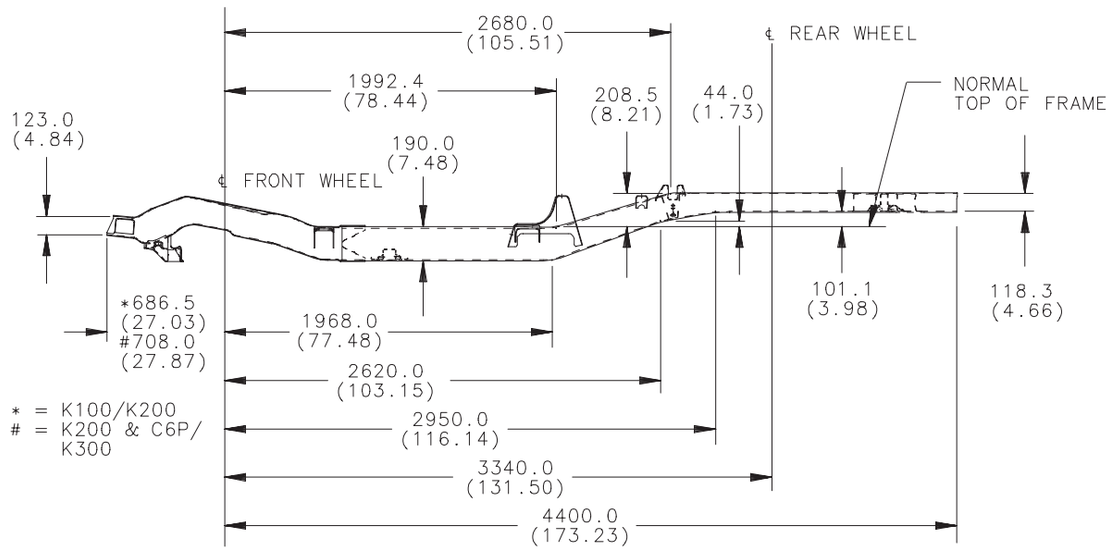
Ω=M30 ONLY: LH CENTERLINE IS 56.9(2.24) FORWARD OF RH CENTERLINE

PICKUP BOX MOUNTING HOLE LOCATIONS MARKED THUS Δ 8 PLACES. DIMENSIONS OF MOUNTING HOLES ARE SYMMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE

( ) = INCHES

K 30903 Regular Cab Pickup, Crossmember Arrangement





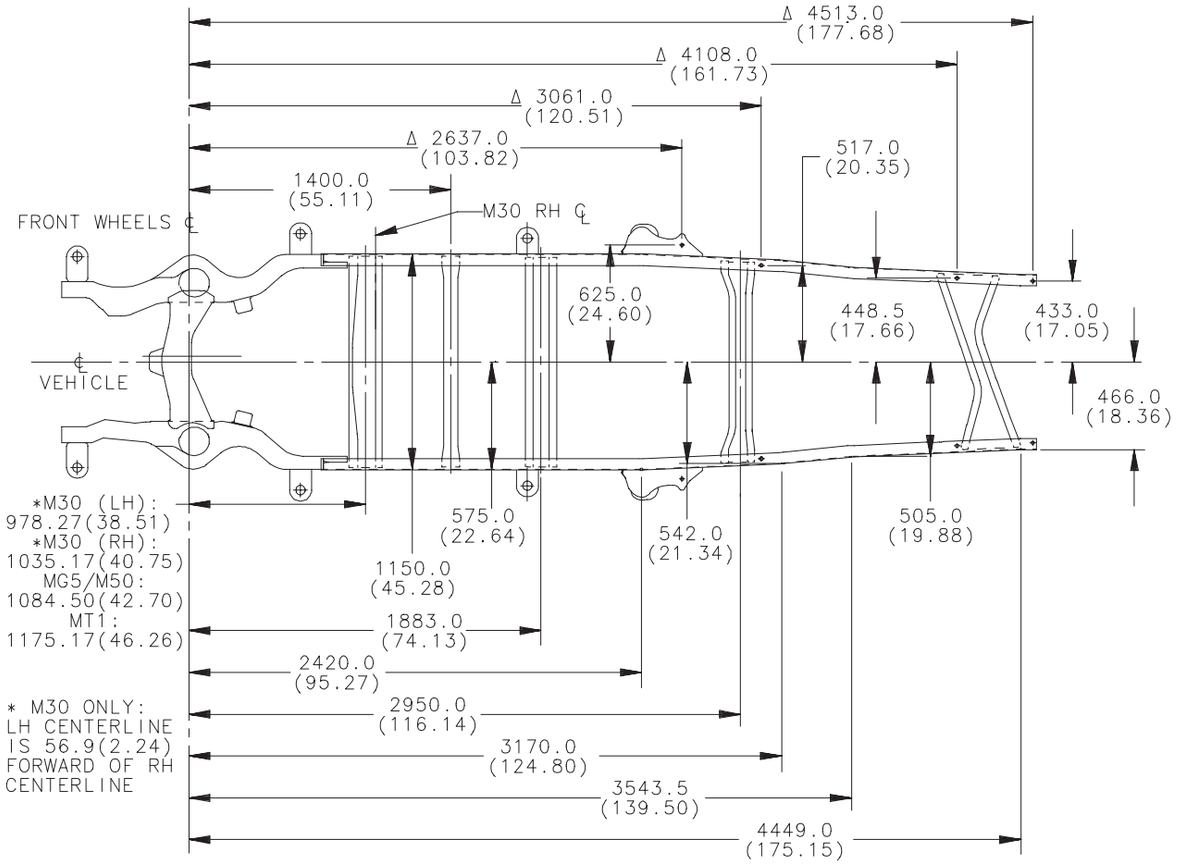
NOTES:

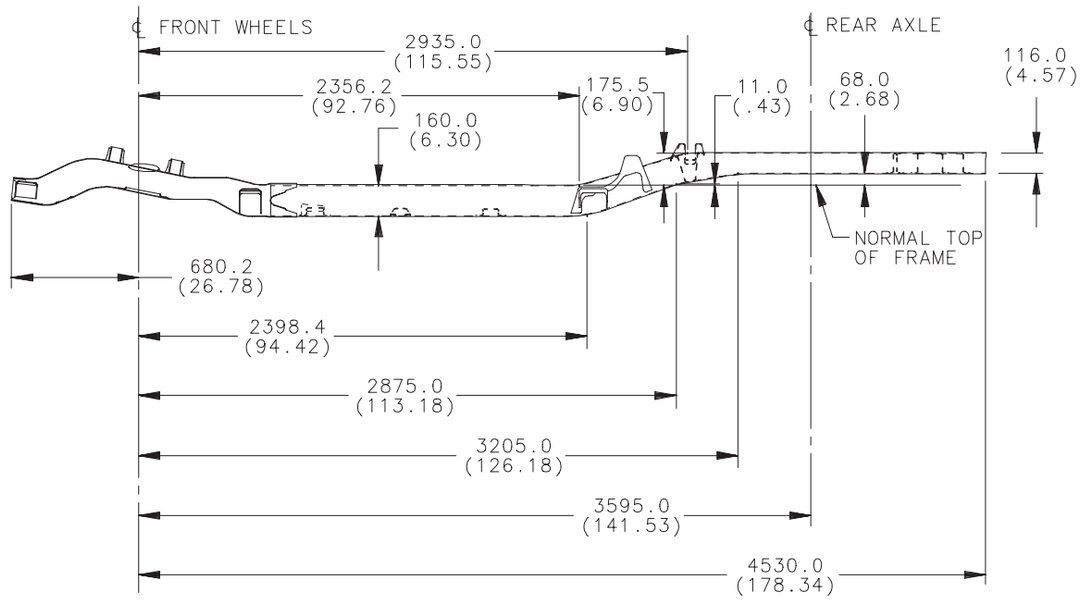
FRAME OUTLINE DIMENSIONS ARE SYMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE.

PICKUP BOX MOUNTING HOLES ARE MARKED THUS ⌓ 8 PLACES.

( ) = INCHES.

C (1/2)0753 Extended Cab Pickup, Crossmember Arrangement



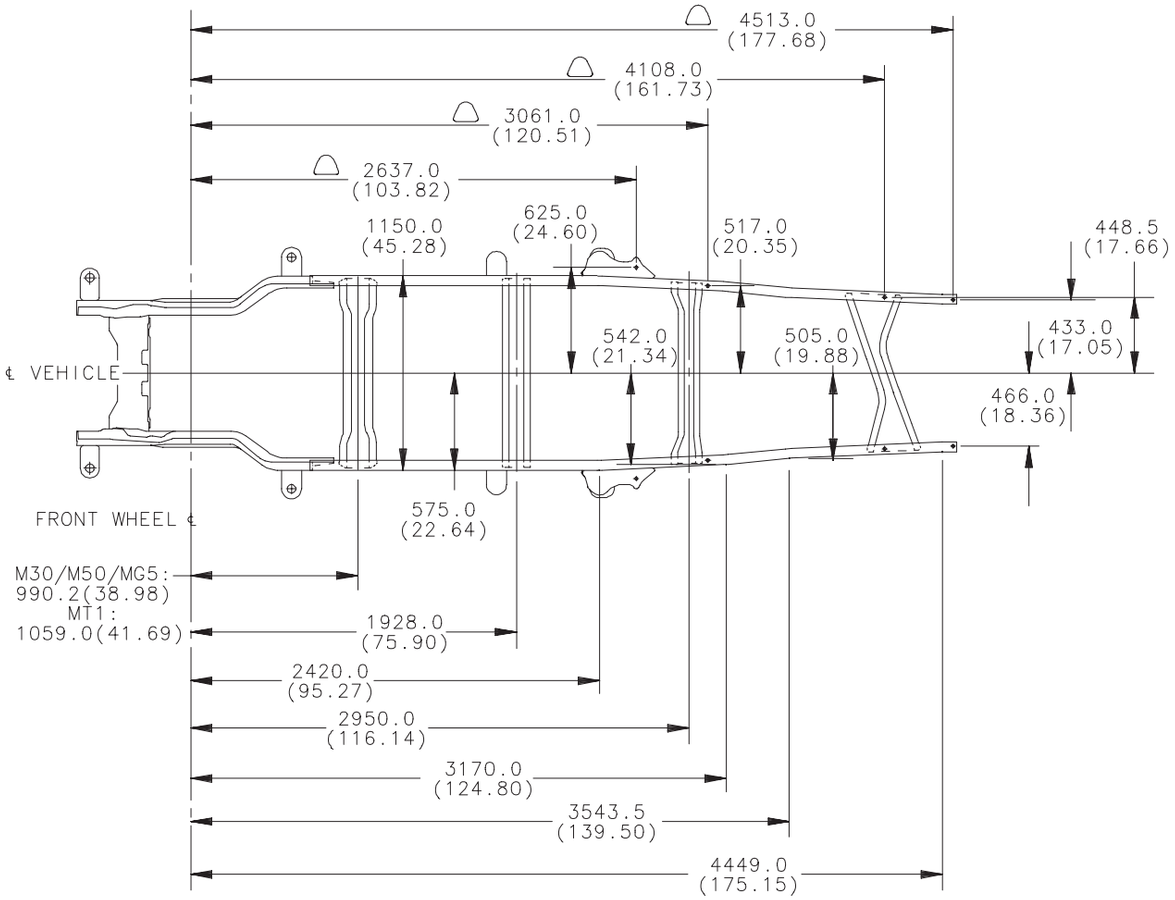


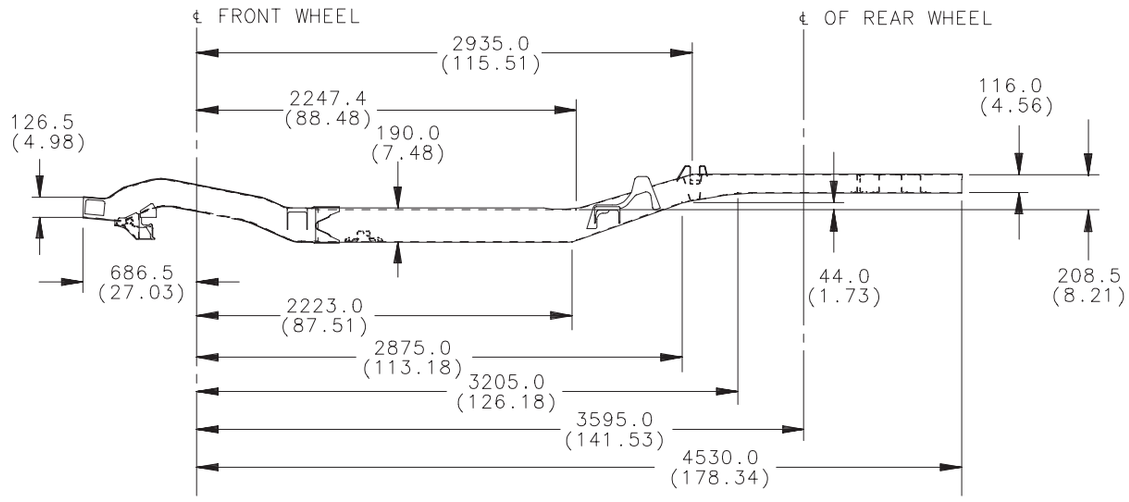
FRAME OUTLINE DIMENSIONS ARE SYMMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE

PICKUP BOX MOUNTING HOLE LOCATIONS MARKED THUS Δ 8 PLACES. DIMENSIONS OF MOUNTING HOLES ARE SYMMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE

( ) = INCHES

K (1/2)0753 Extended Cab Pickup, Crossmember Arrangement





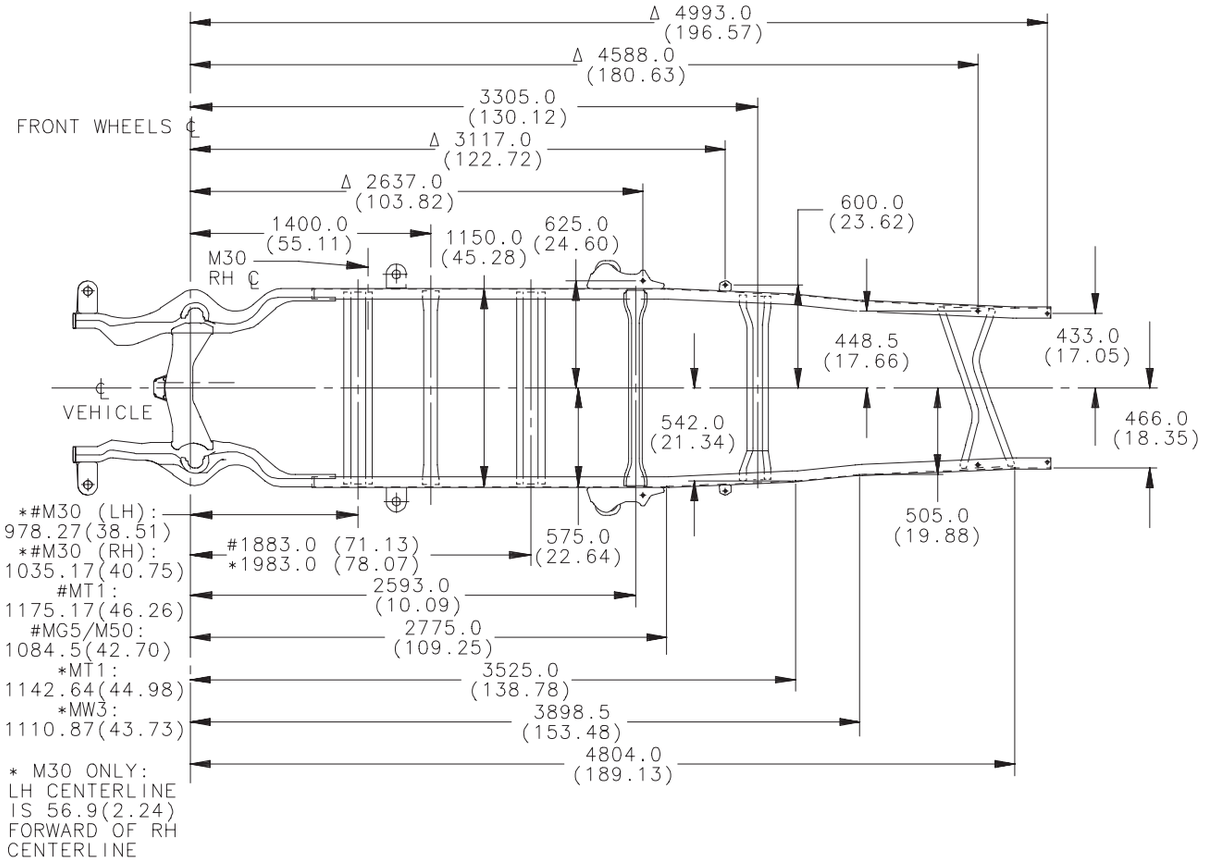
NOTES:

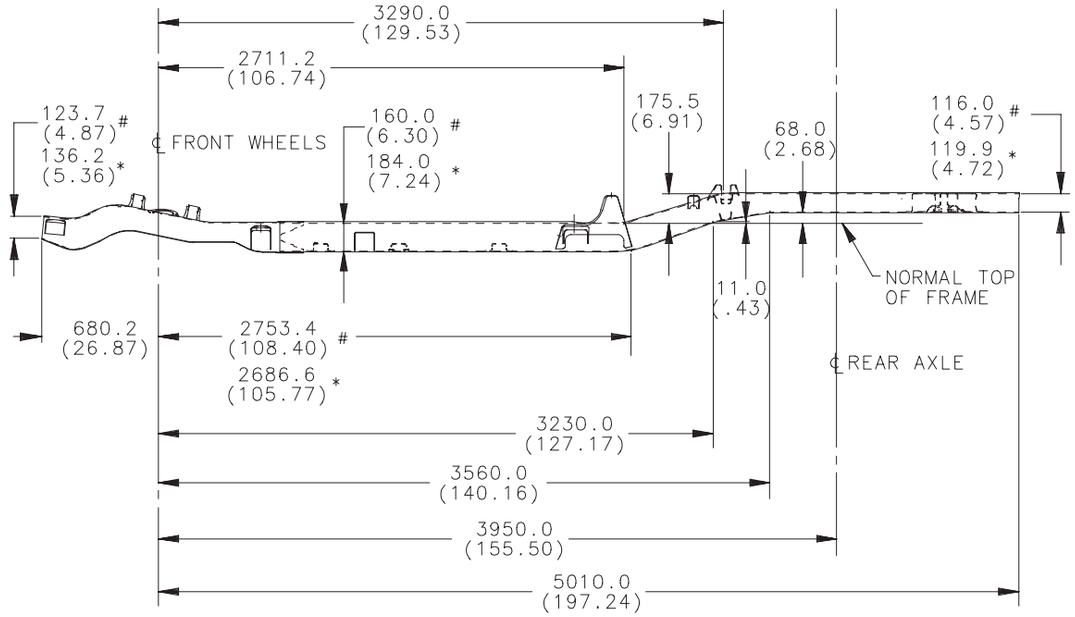
FRAME OUTLINE DIMENSIONS ARE SYMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE.

PICKUP BOX MOUNTING HOLES ARE MARKED THUS ⌓ 8 PLACES.

( ) = INCHES.

C (1/2/3)0953 Extended Cab Pickup, Crossmember Arrangement





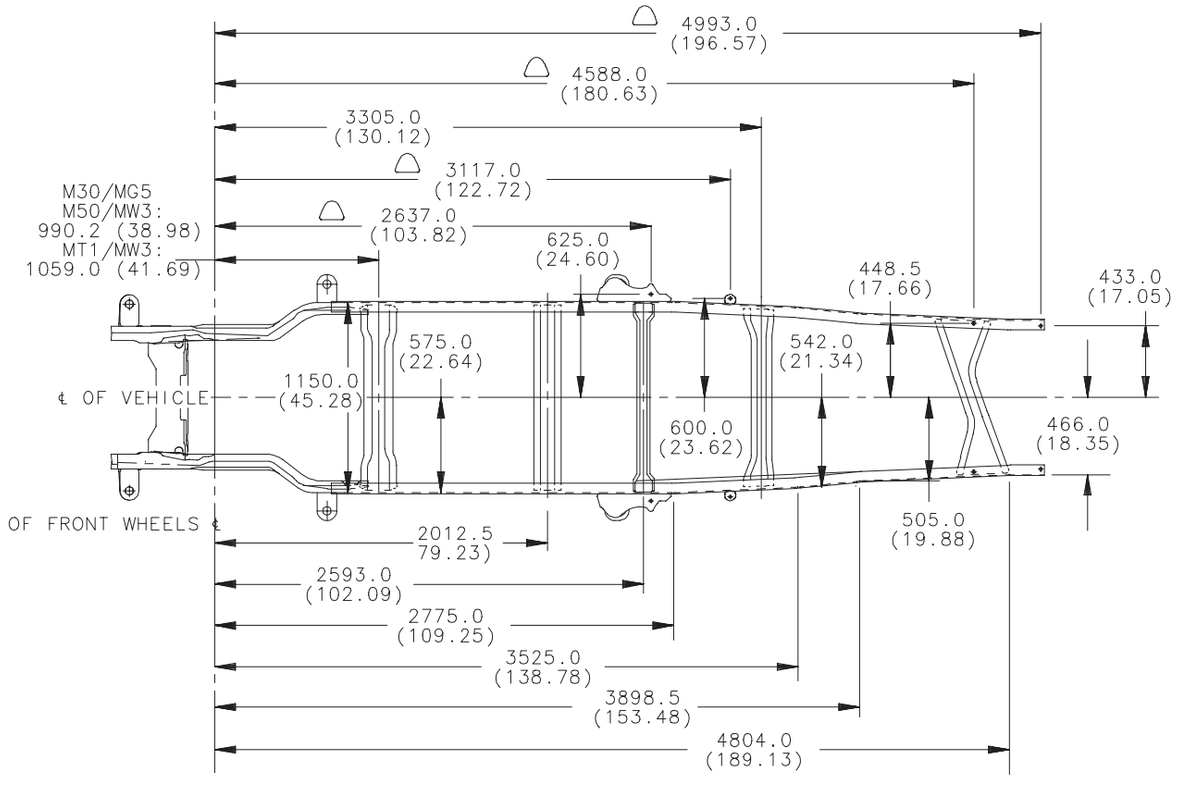
* = C209 W C6P/309
\# = C109/209 WO C6P

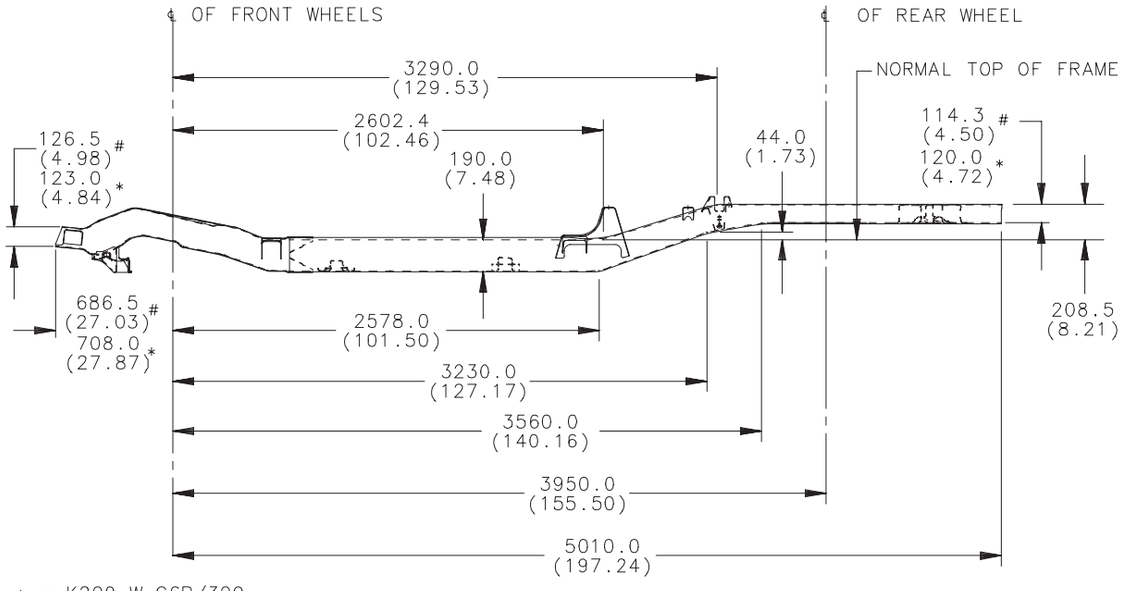
FRAME OUTLINE DIMENSIONS ARE SYMMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE

PICKUP BOX MOUNTING HOLE LOCATIONS MARKED THUS Δ 8 PLACES. DIMENSIONS OF MOUNTING HOLES ARE SYMMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE

( ) = INCHES

K (1/2/3)0953 Extended Cab Pickup, Crossmember Arrangement



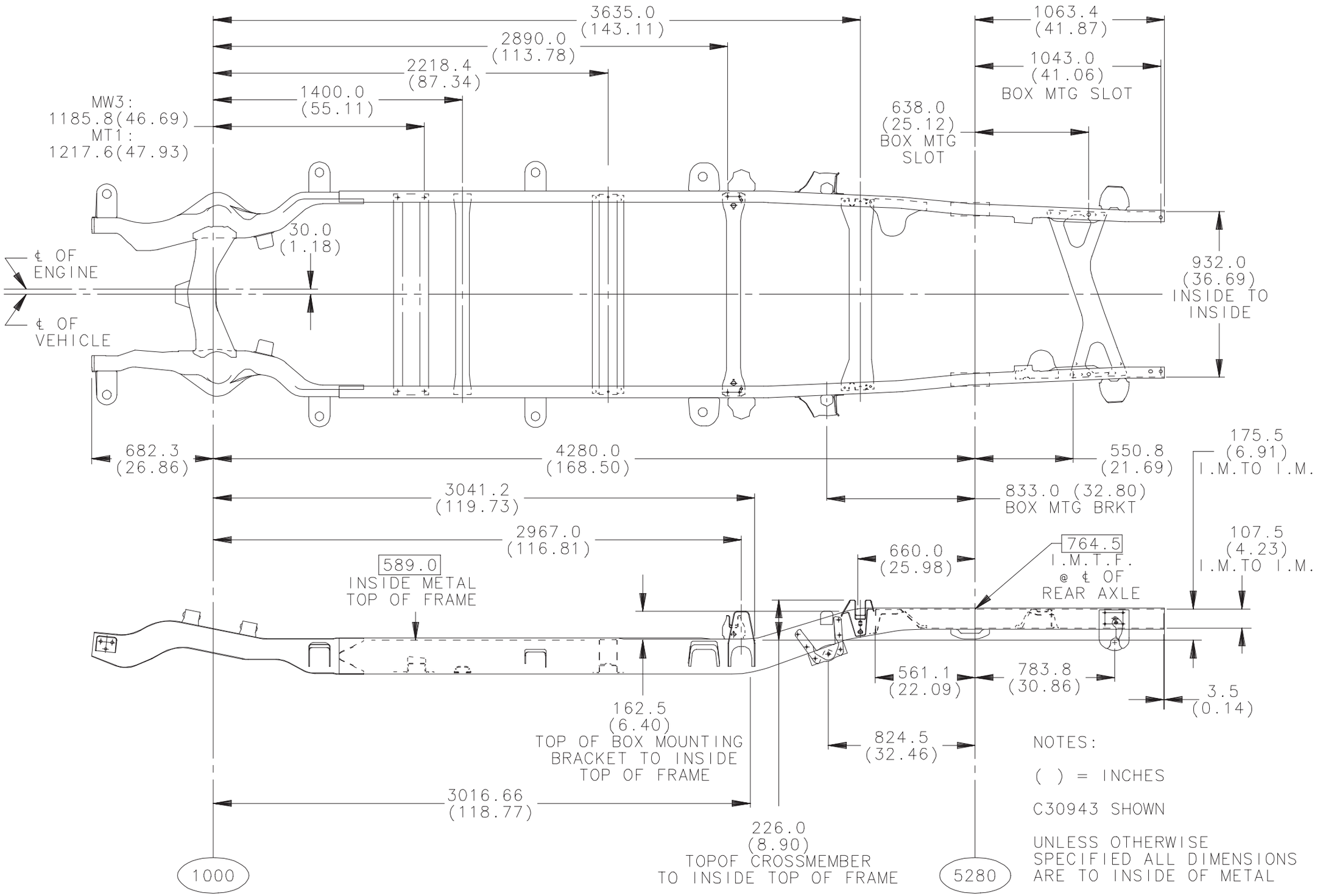


* = K209 W C6P/309
\# = K109/209 WO C6P

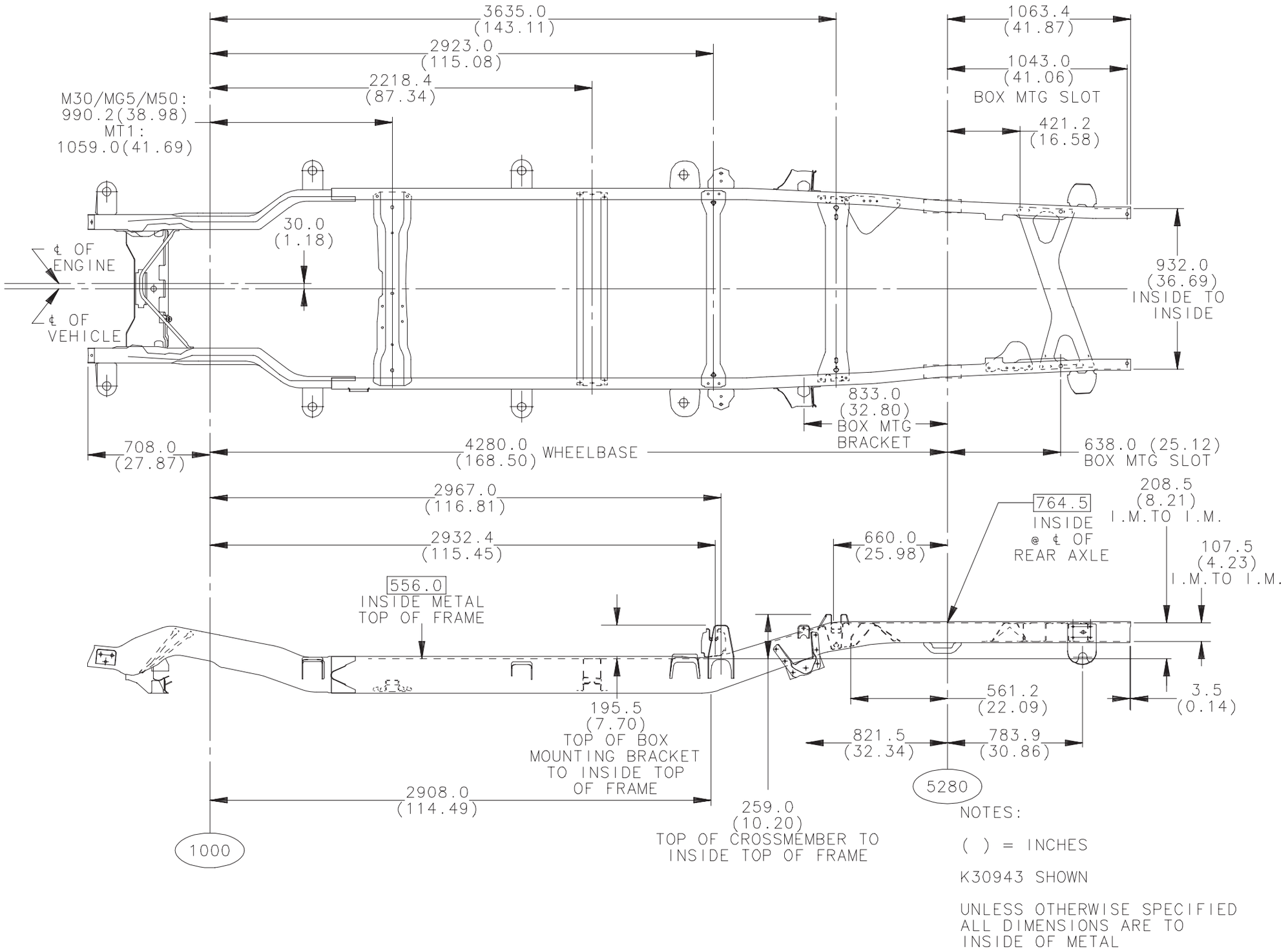
( ) = INCHES

FRAME OUTLINE DIMENSIONS ARE SYMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE. PICKUP BOX MOUNTING HOLES ARE MARKED THUS ⌓ 8 PLACES.

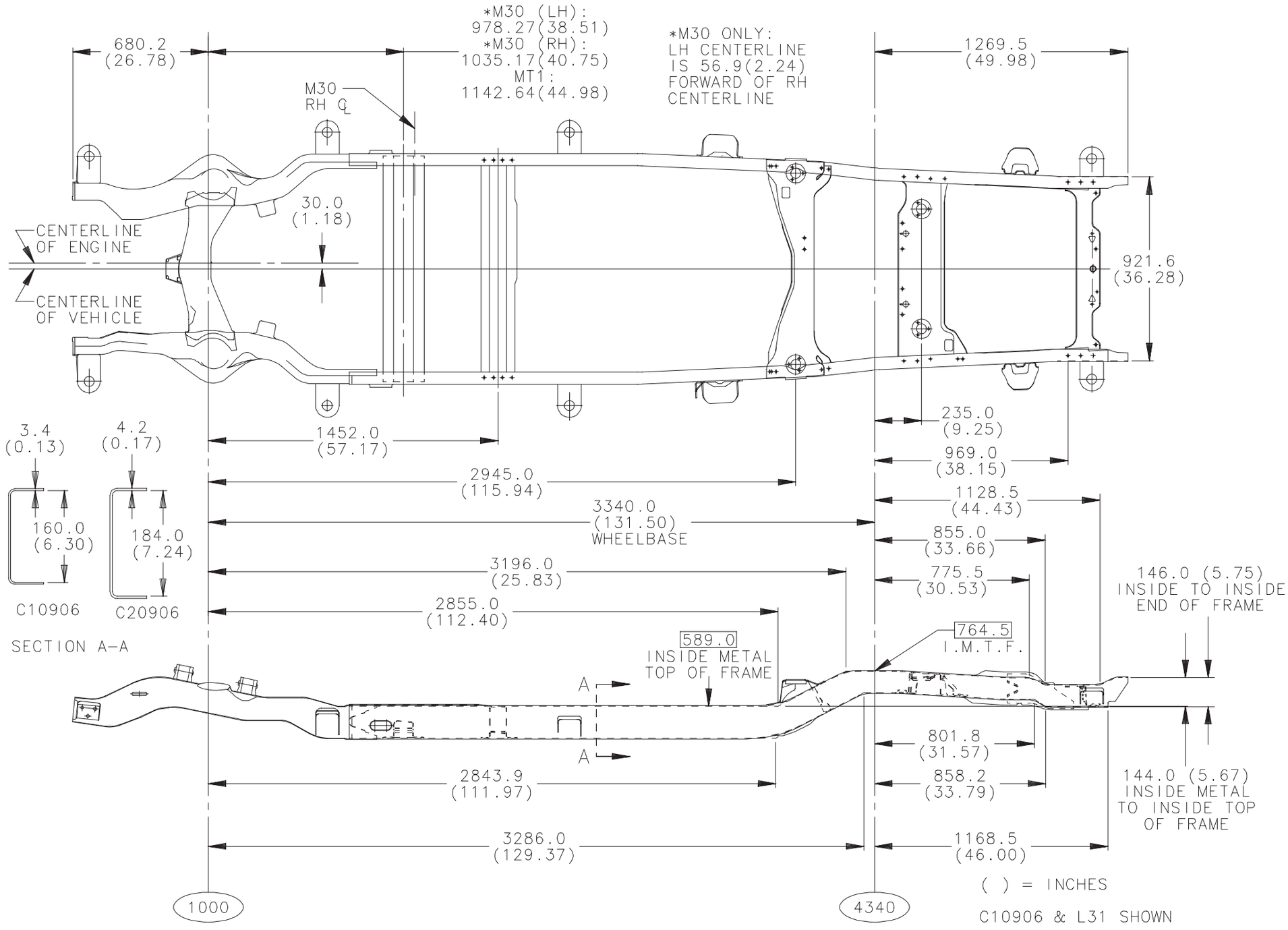
C 30943 Crew Cab Pickup, Crossmember Arrangement



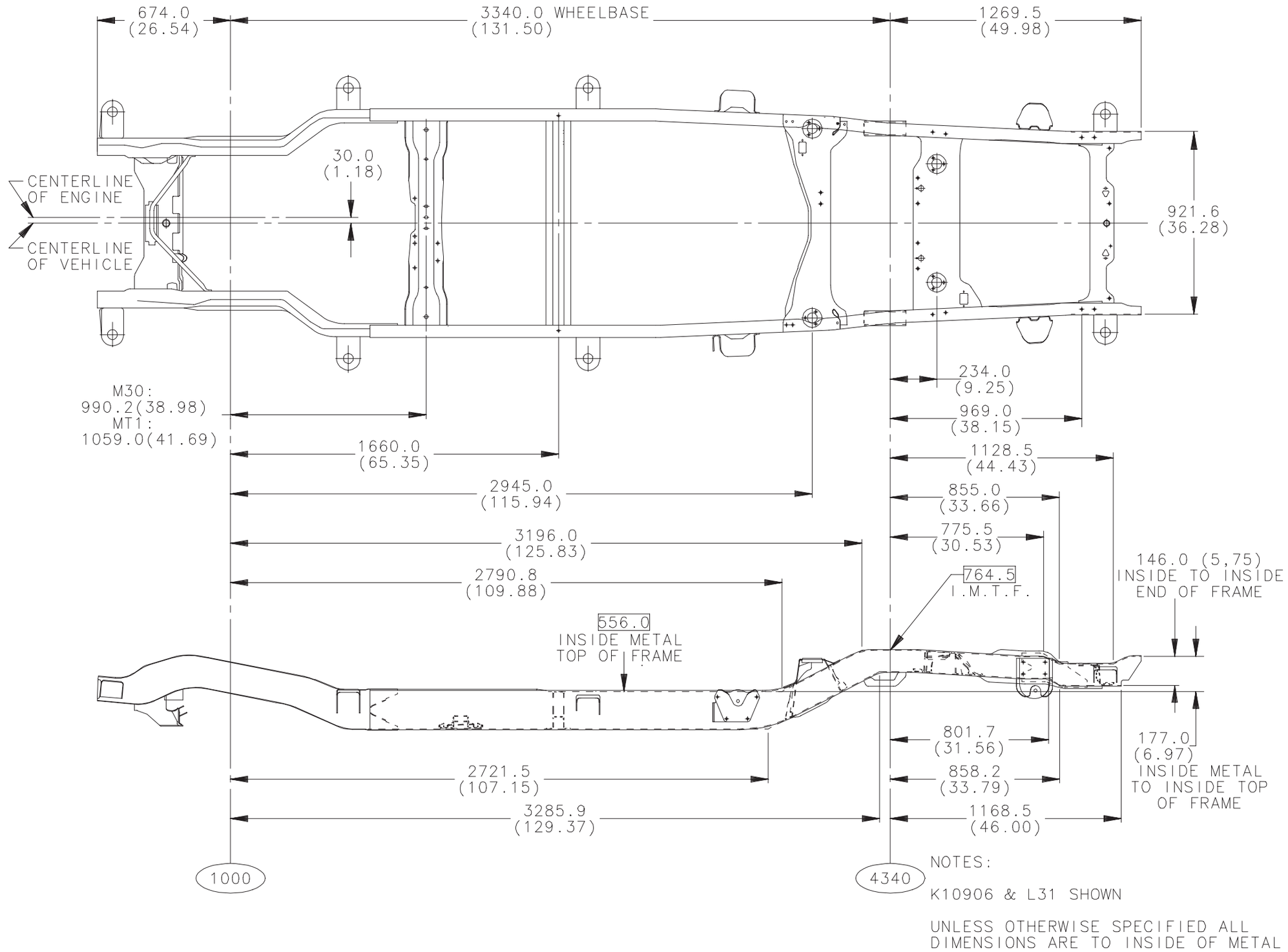
K 30943 Crew Cab Pickup, Crossmember Arrangement



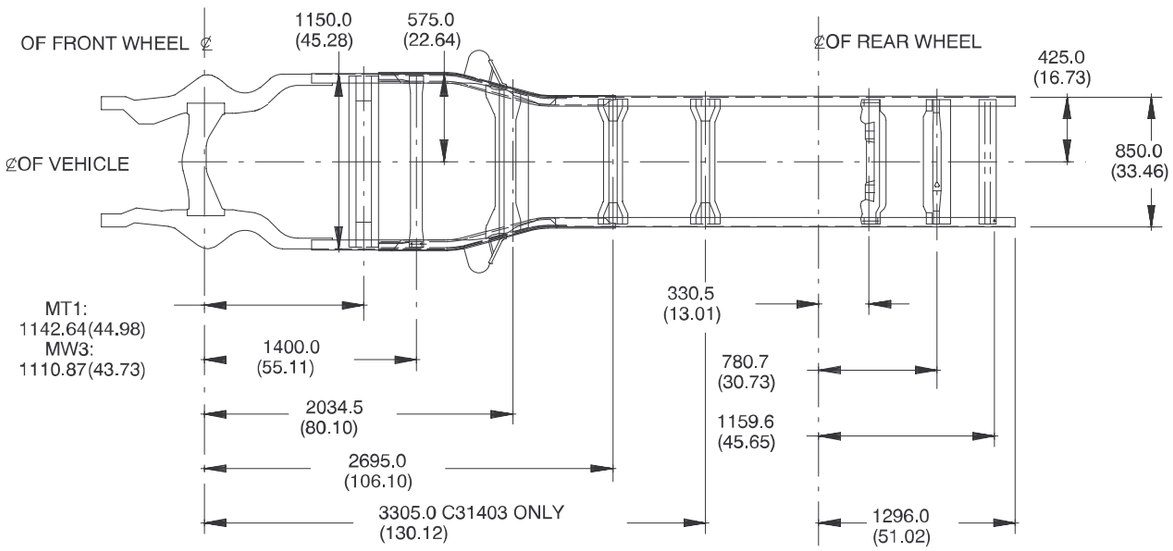
C (1/2)0906 Suburban, Crossmember Arrangement

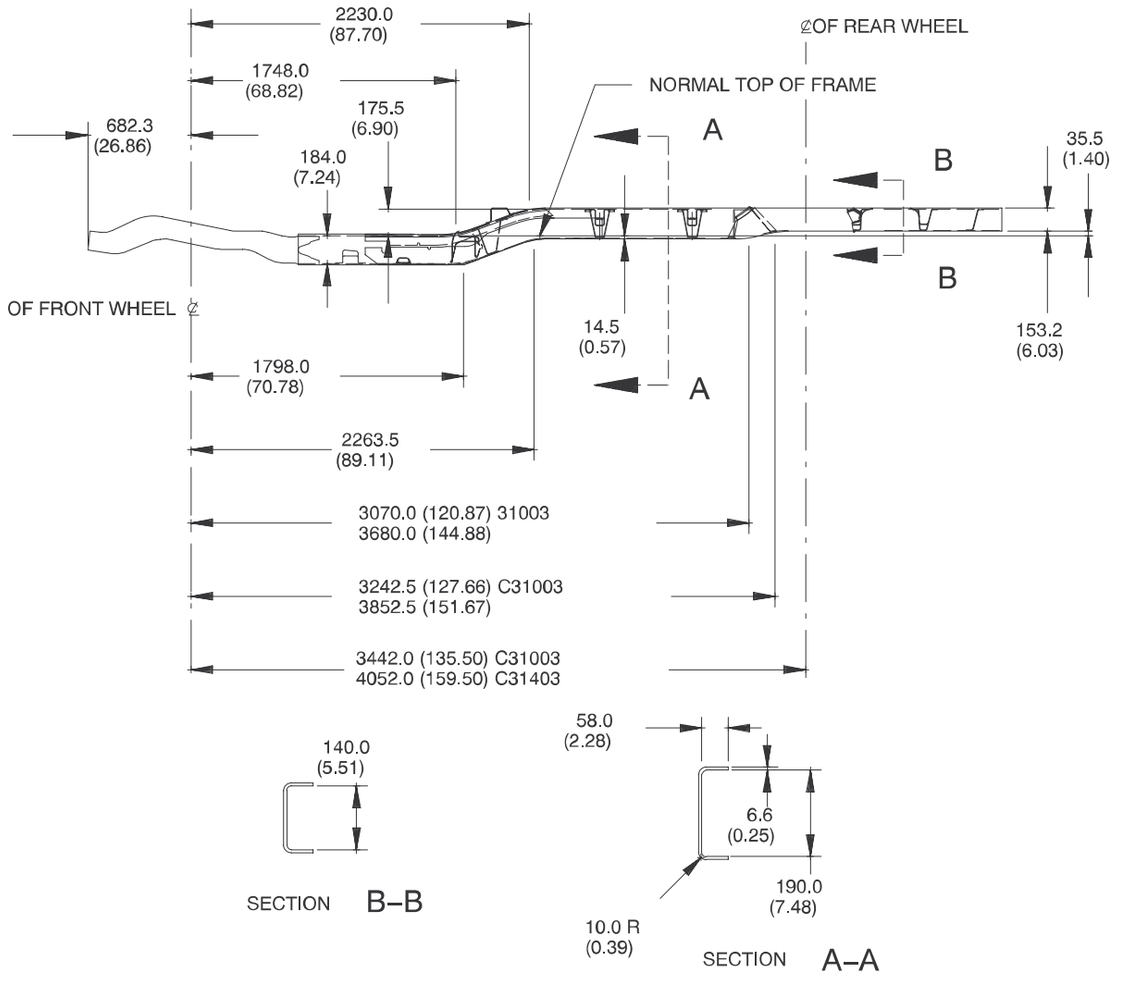


K (1/2)0906 Suburban, Crossmember Arrangement

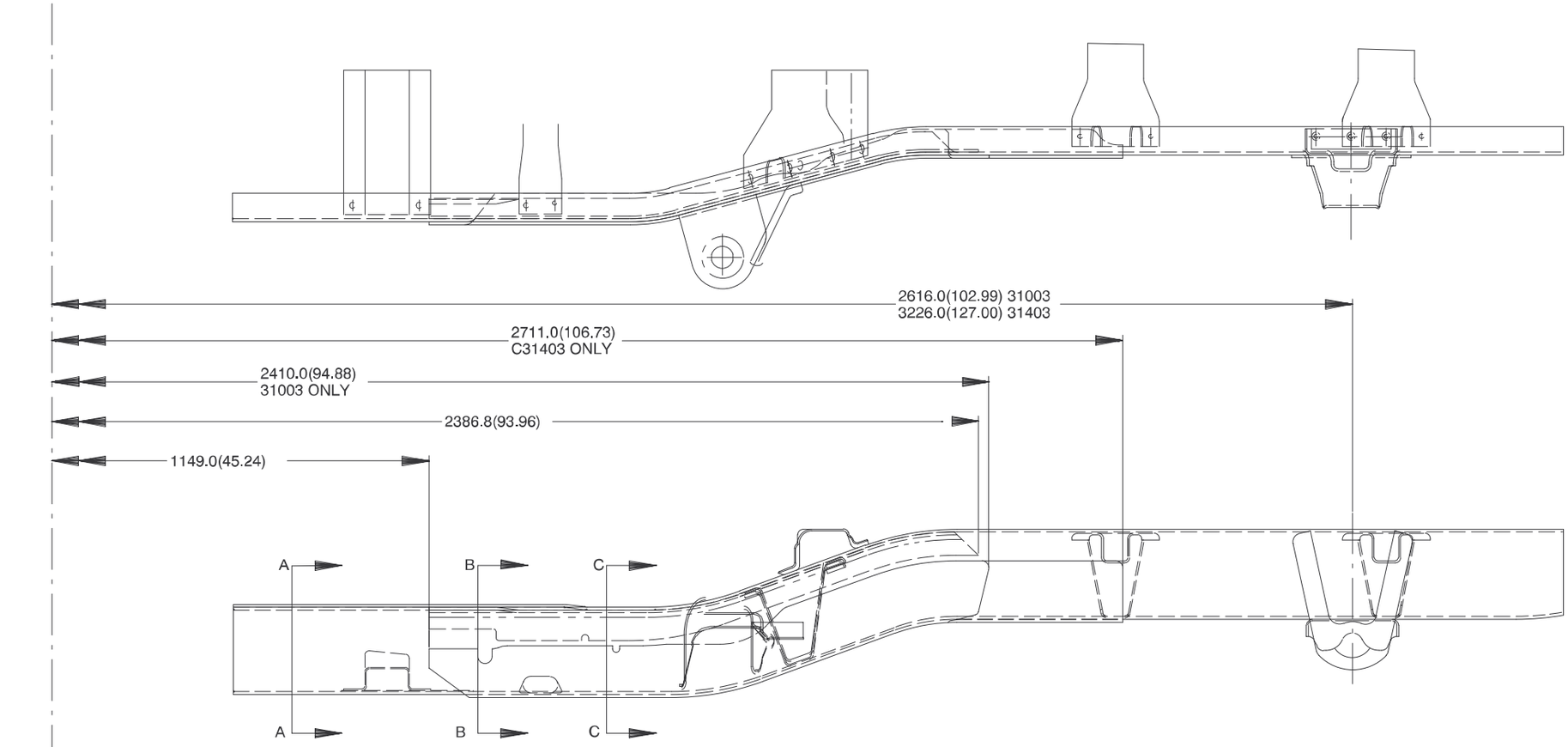


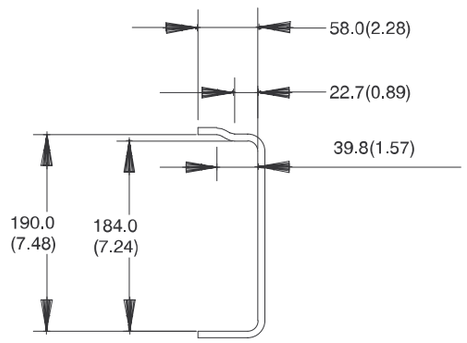
C (310/314)03 Chassis Cab, 10,000 and 11,000 lb. GVWR, Crossmember Arrangement



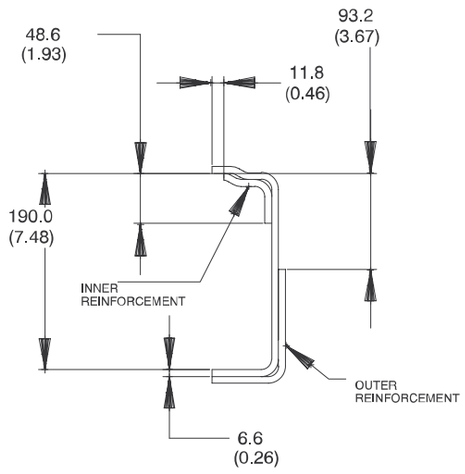


C (310/314)03 Chassis Cab, 10,000 and 11,000 lb. GVWR, Frame Reinforcement

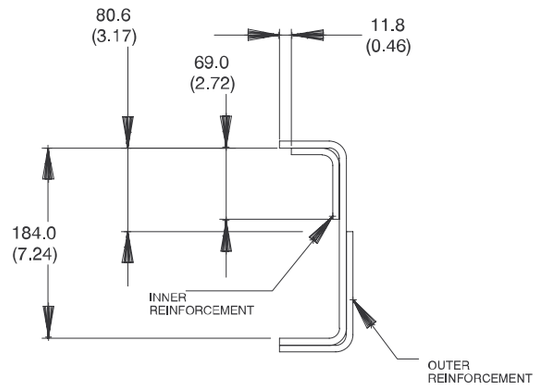




SECTION A–A

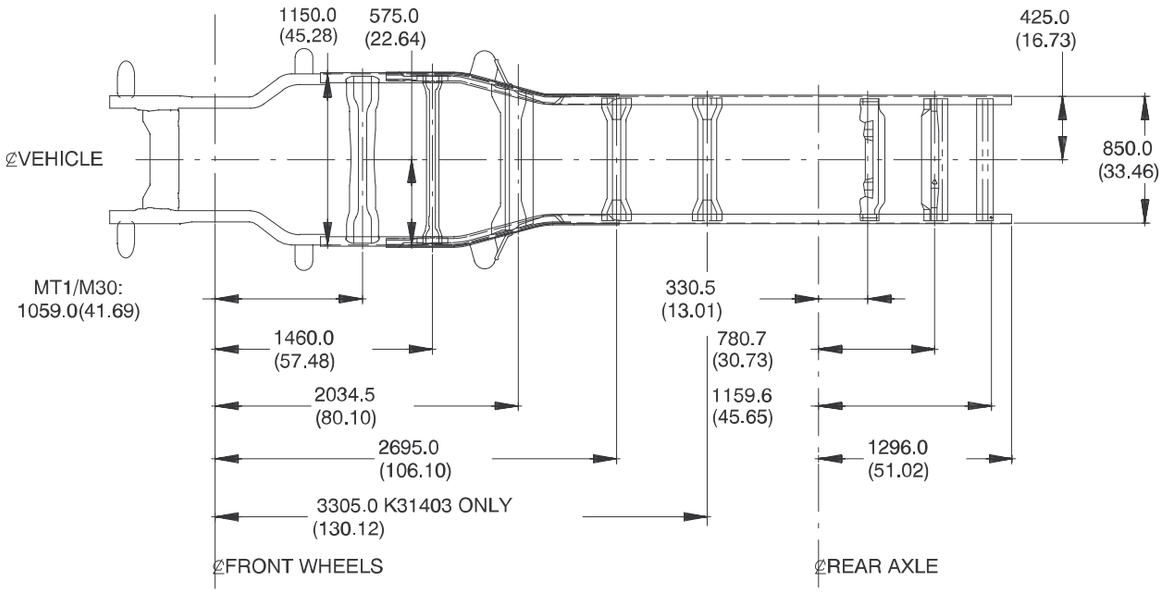


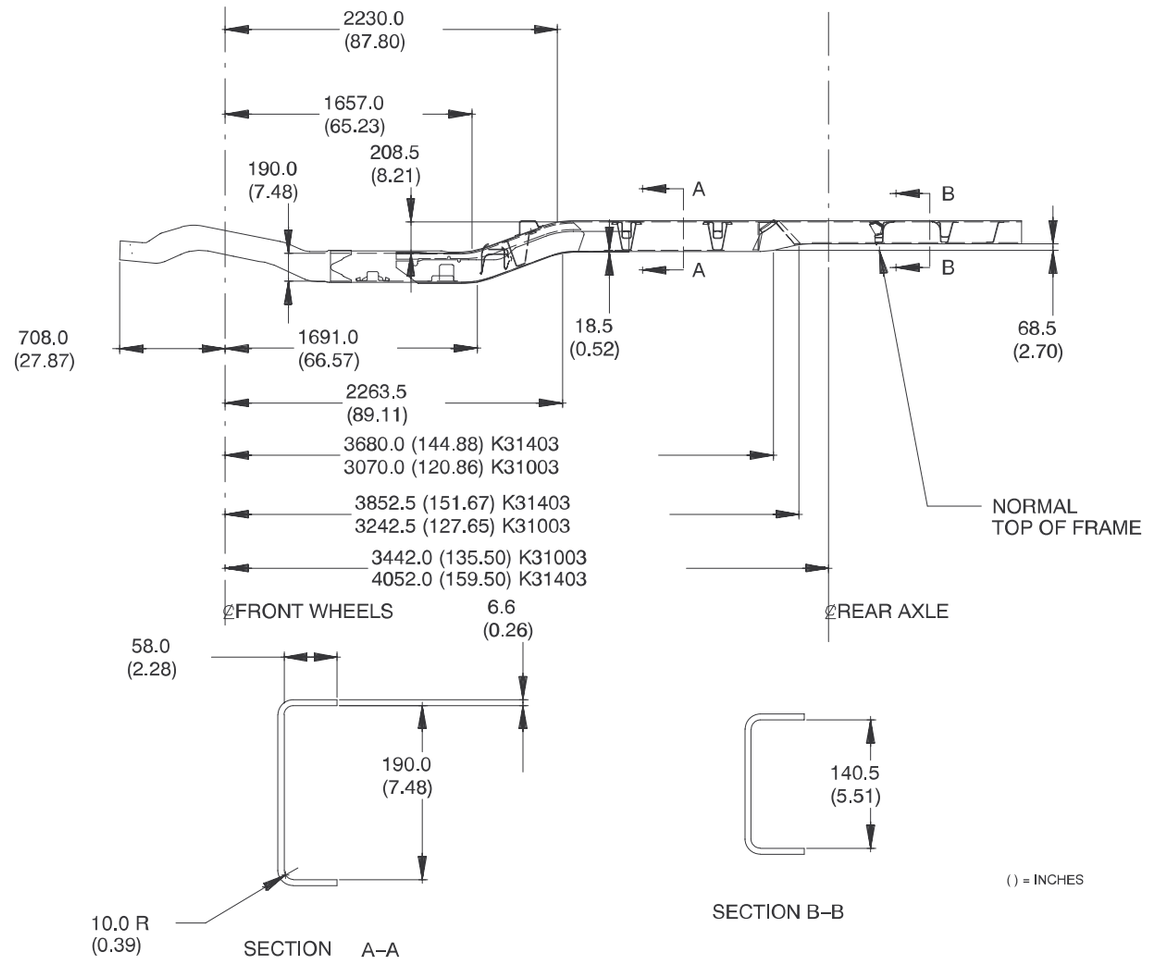
SECTION B–B



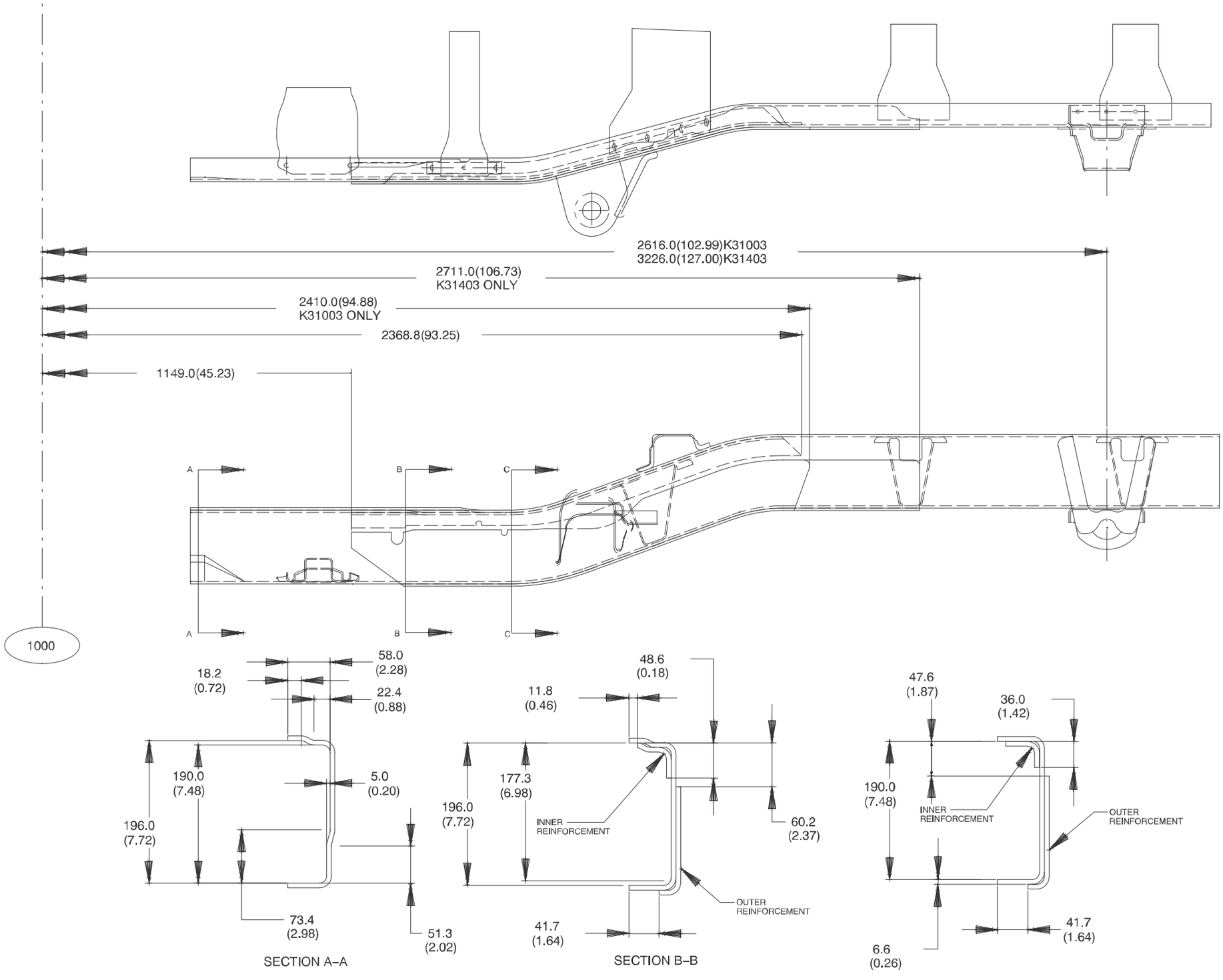
SECTION C–C

K (310/314)03 Chassis Cab, 12,000 lb. GVWR, Crossmember Arrangement

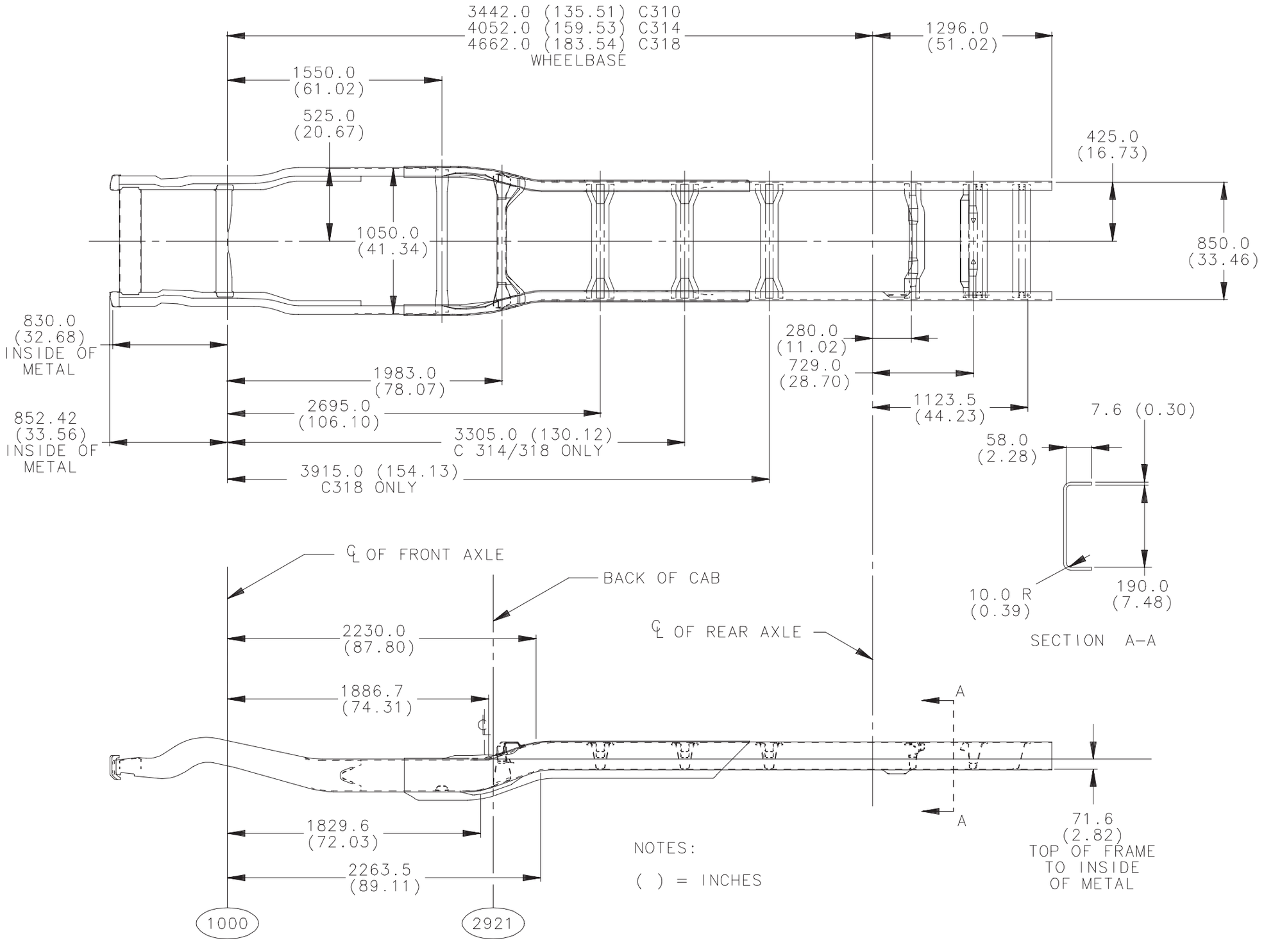




K (310/314)03 Chassis Cab, 12,000 lb. GVWR, Frame Reinforcement

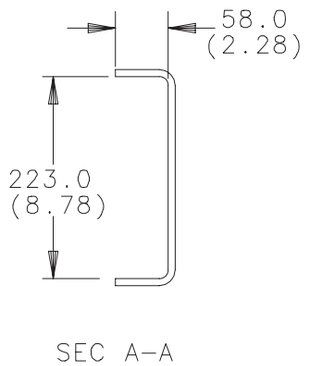


C (310/314/318)03 Chassis Cab, 15,000 lb. GVWR, Crossmember Arrangement

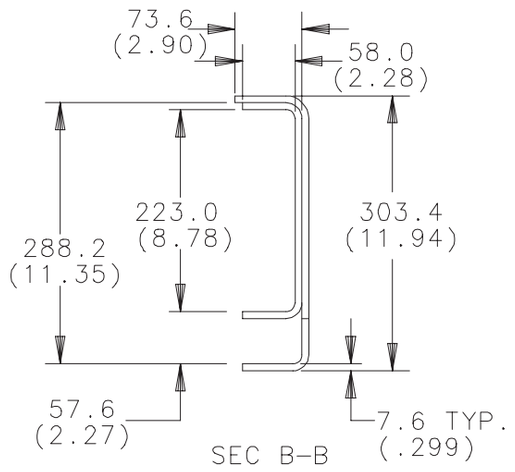


C 3500HD Outside Channel Reinforcement

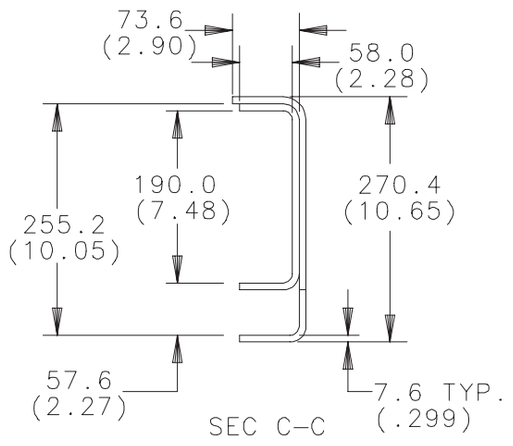
SECTION MODULUS = 10.14 IN^3
RBM = 355,000 IN LB

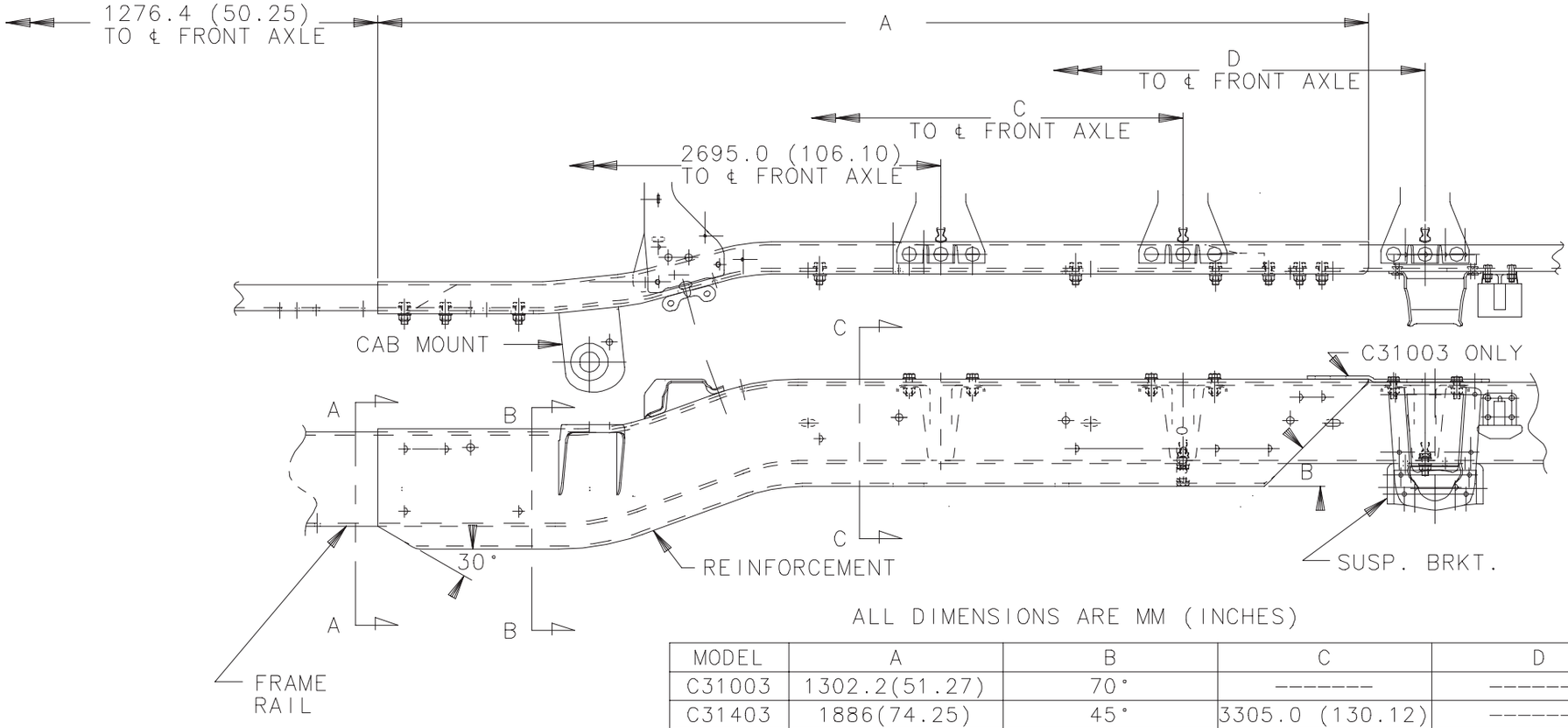


SECTION MODULUS = 21.1 IN^3
RBM = 738,000 IN LB



SECTION MODULUS = 18.86 IN^3
RBM = 660,000 IN LB

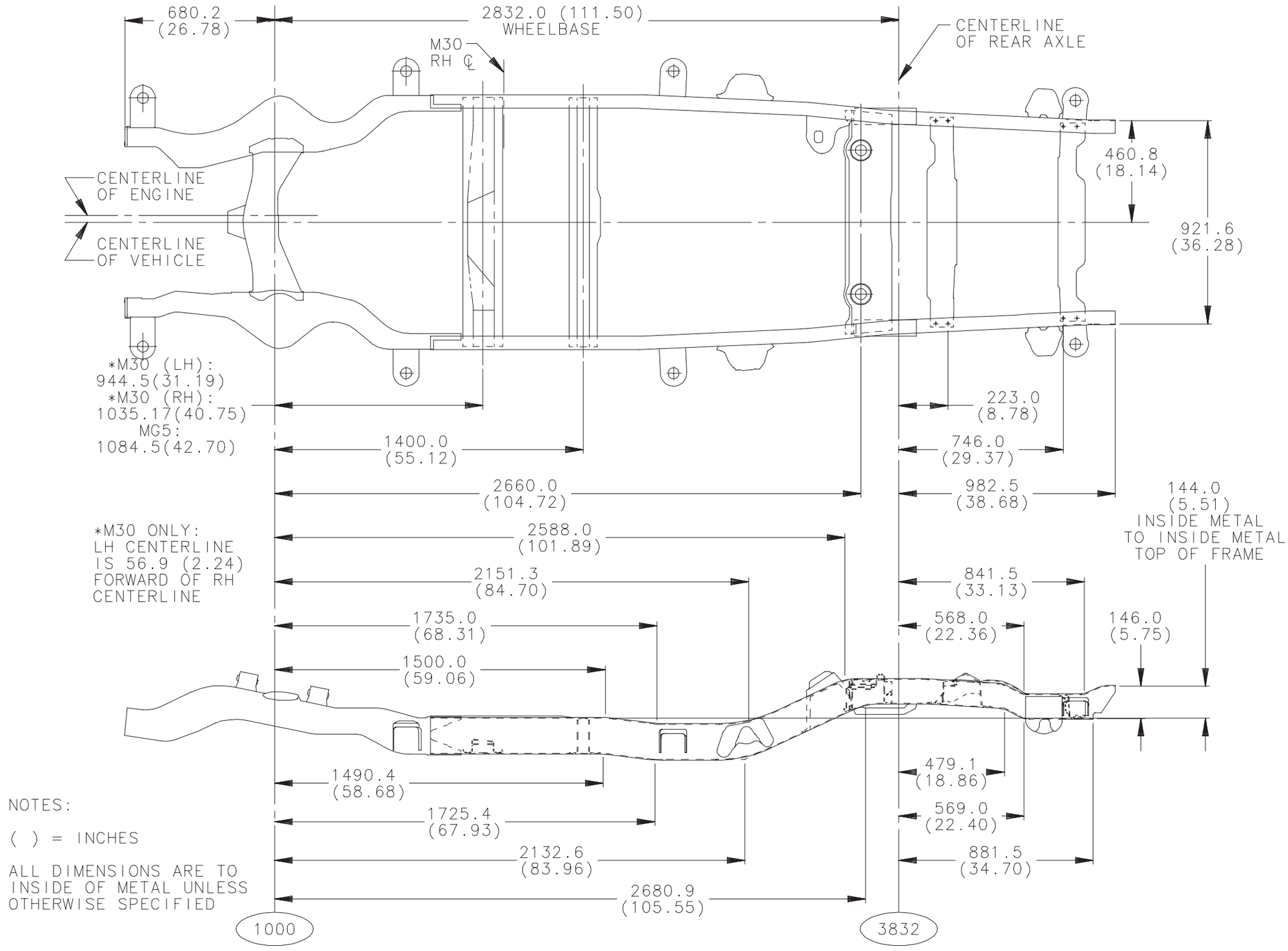




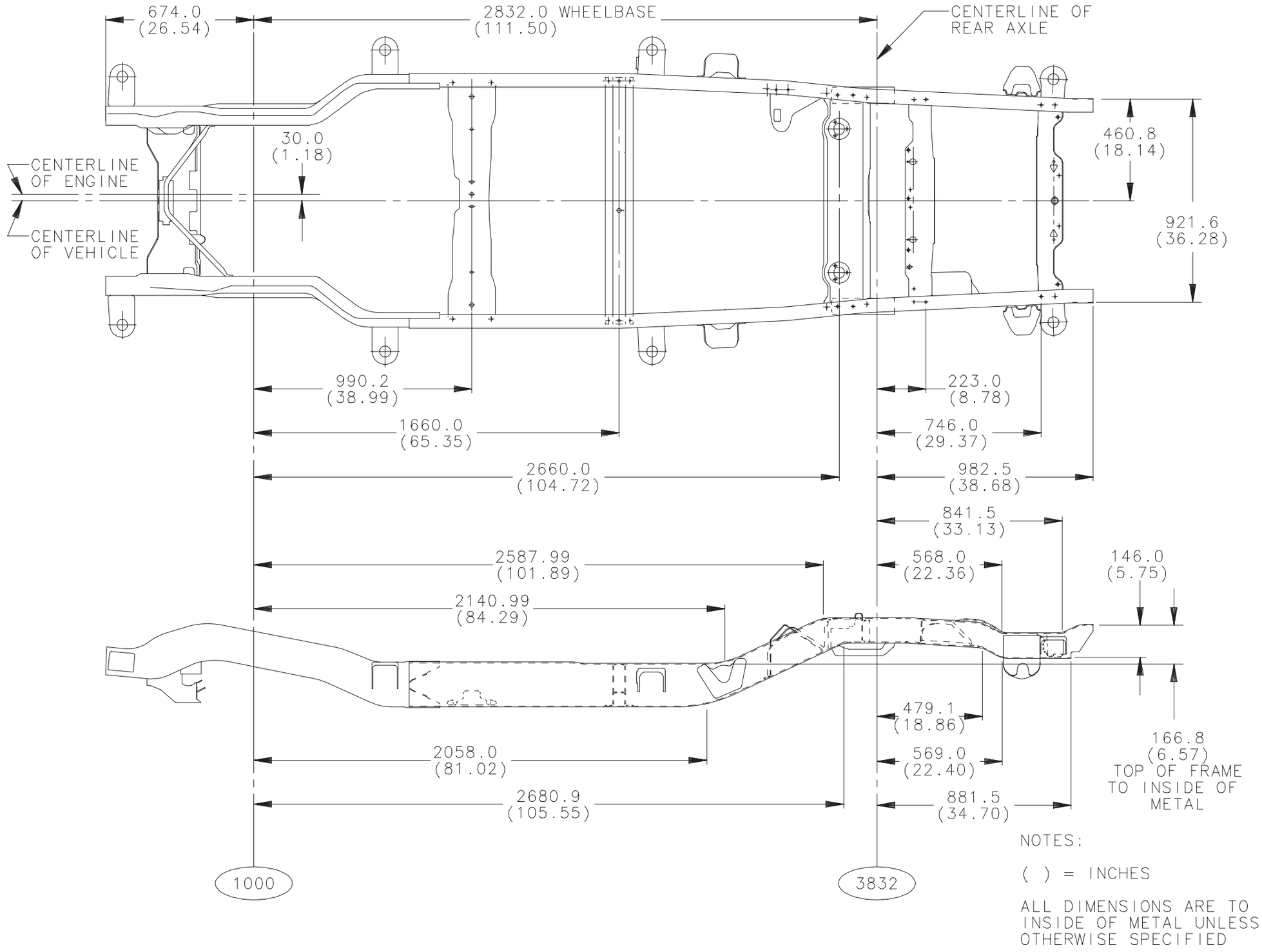
ALL DIMENSIONS ARE MM (INCHES)

MODEL	A	B	C	D
C31003	1302.2(51.27)	70°	--------	--------
C31403	1886(74.25)	45°	3305.0 (130.12)	--------
C31803	2496(98.27)	45°	3305.0 (130.12)	3915.0 (154.13)

C 10516 Utility, 2 Door, Crossmember Arrangement



K 10516 Utility, 2 Door, Crossmember Arrangement

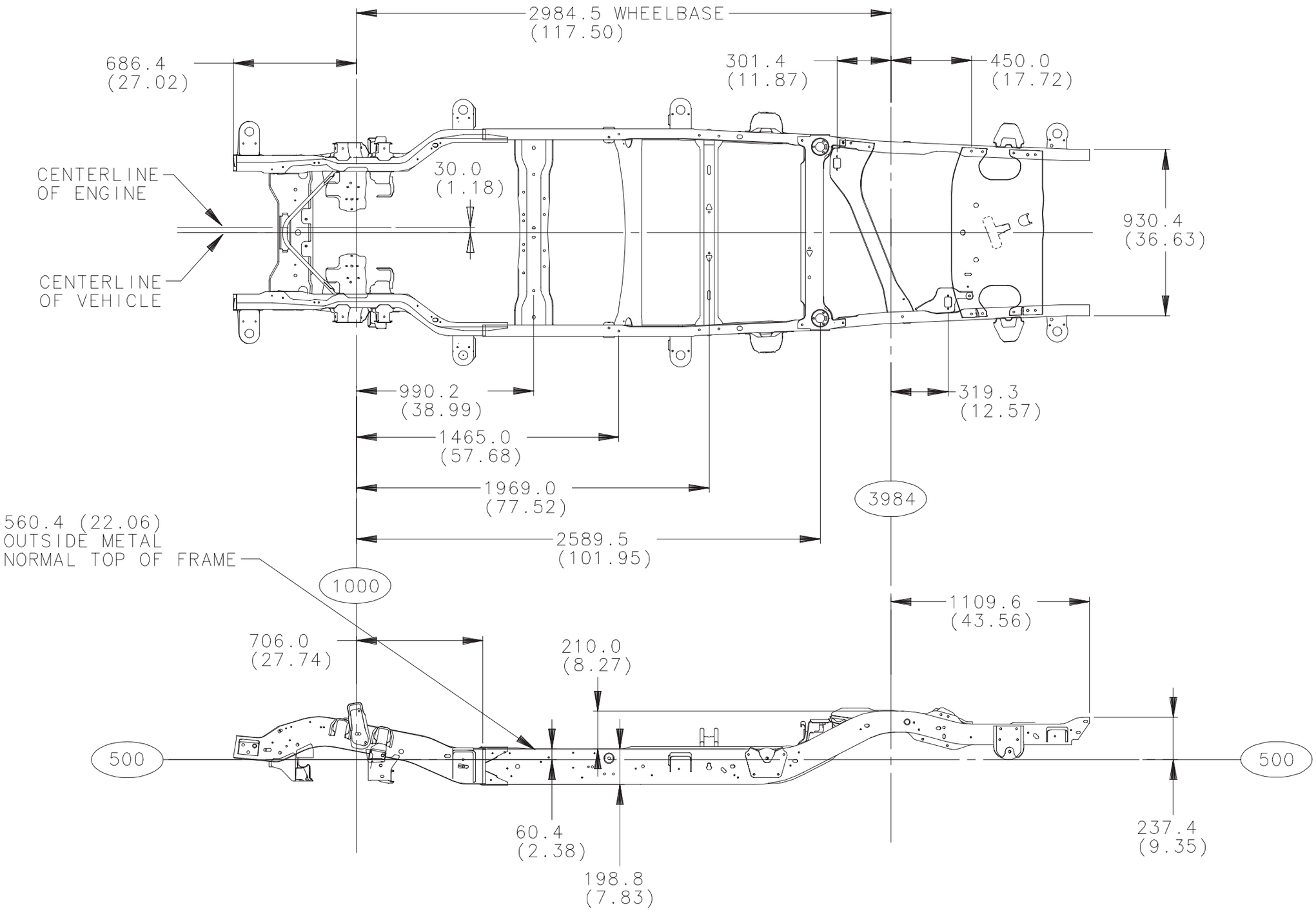


NOTES:

( ) = INCHES

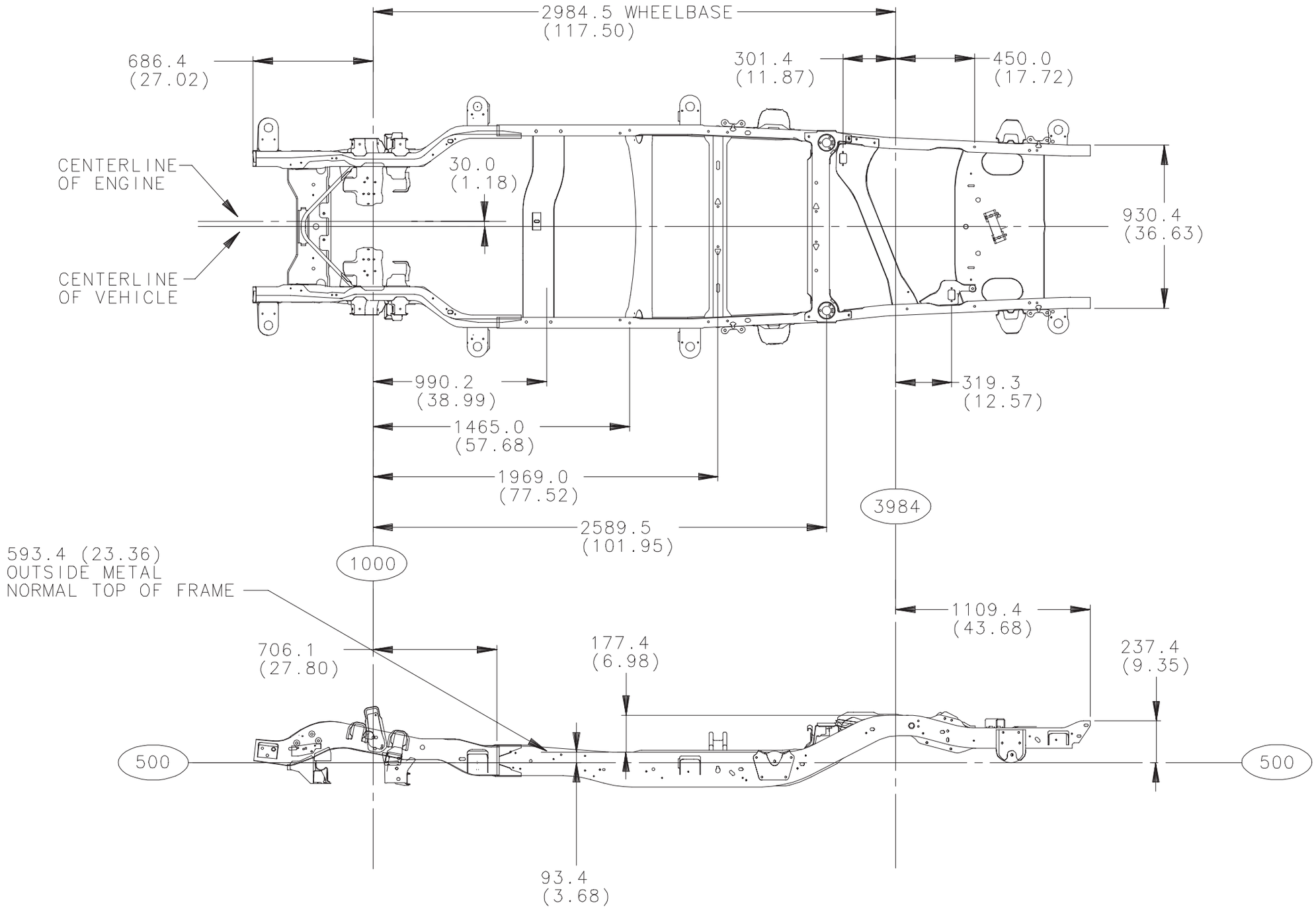
ALL DIMENSIONS ARE TO INSIDE OF METAL UNLESS OTHERWISE SPECIFIED

C 10706 Utility, 4 Door, Crossmember Arrangement



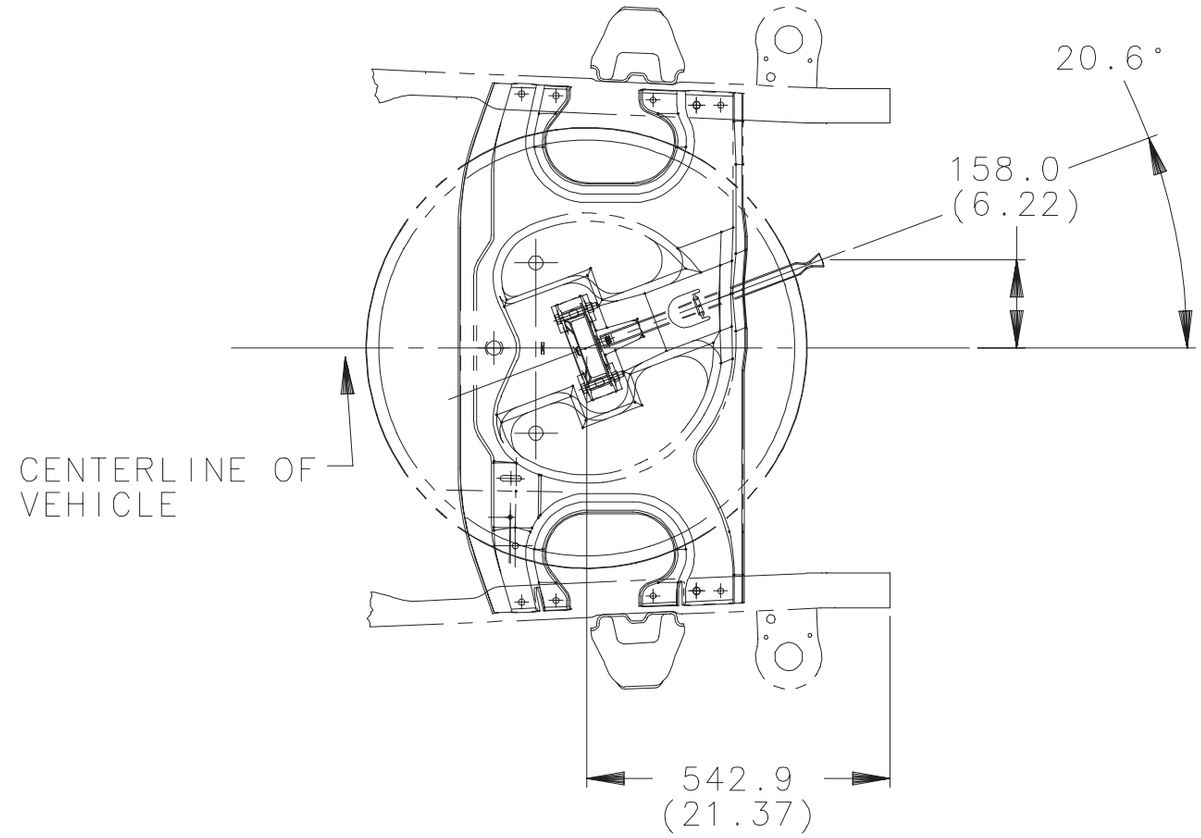
FRAME RAIL
METAL THICKNESS 4.4 mm

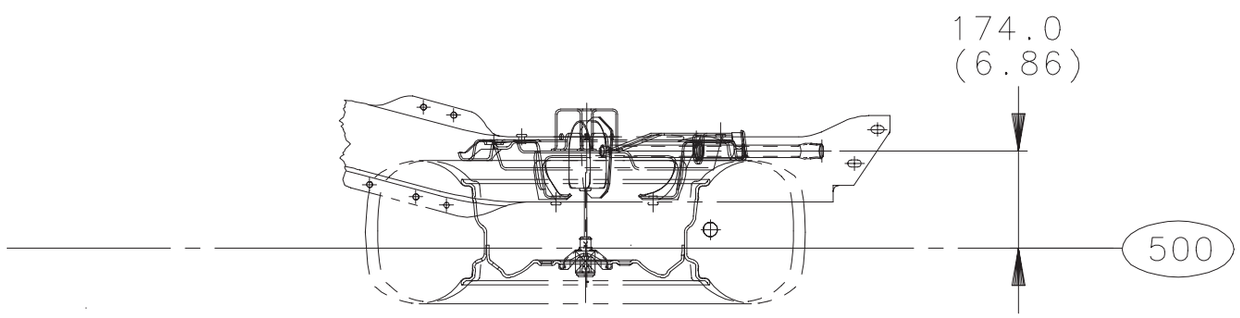
K 10706 Utility, 4 Door, Crossmember Arrangement

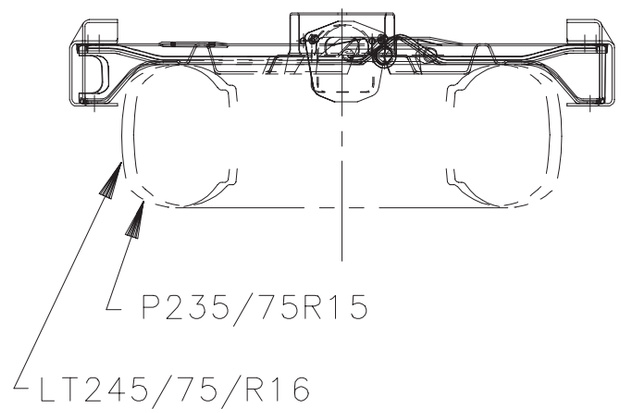


FRAME RAIL
METAL THICKNESS 4 mm

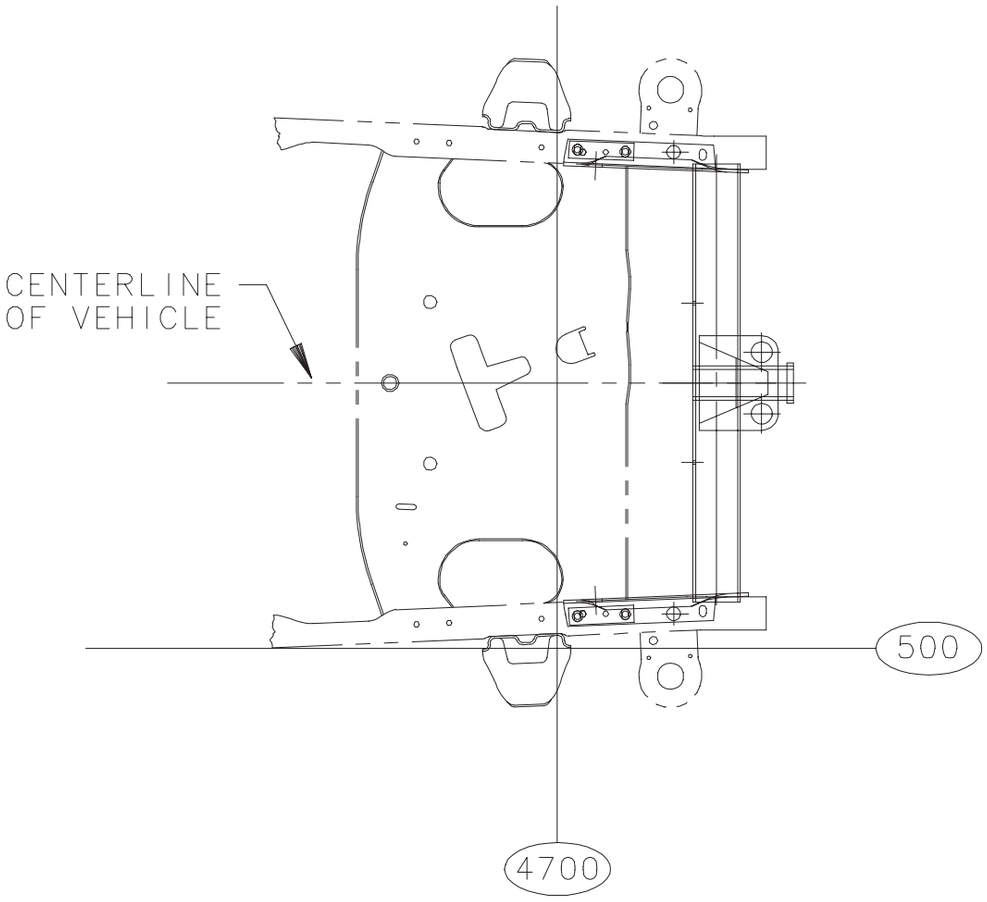
C/K 10706 Utility, Spare Tire Carrier

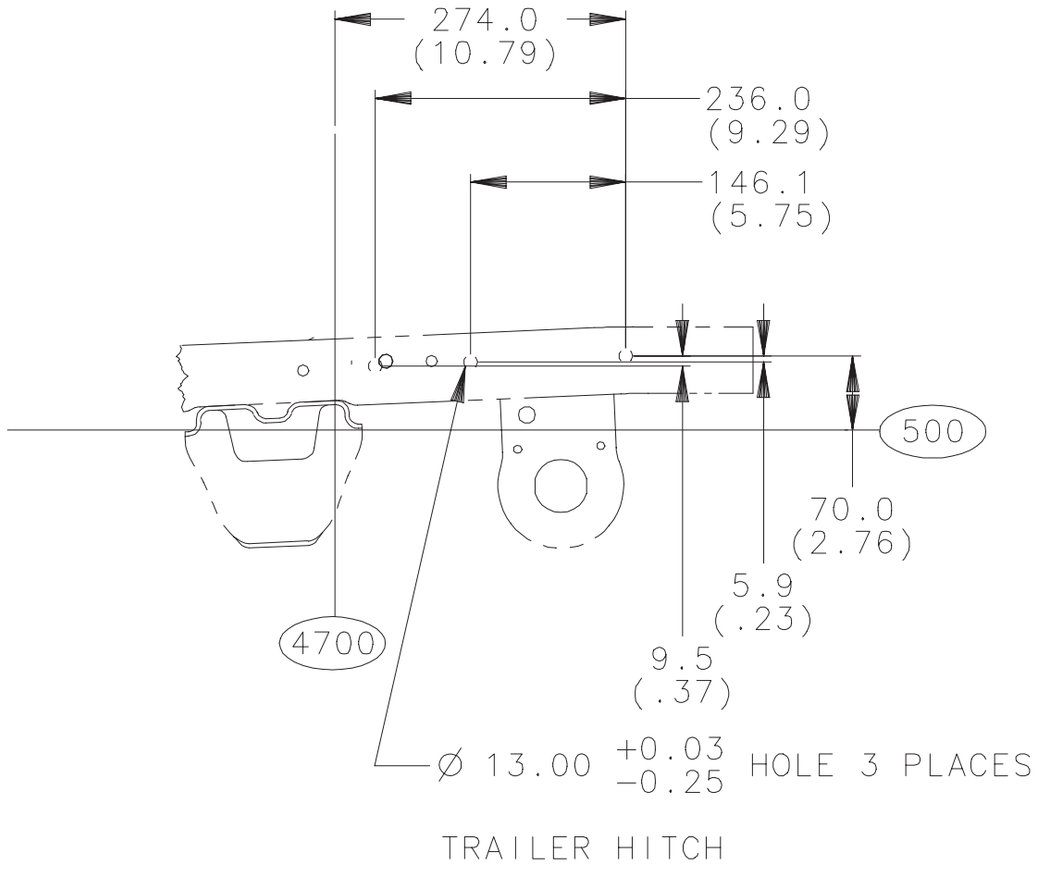


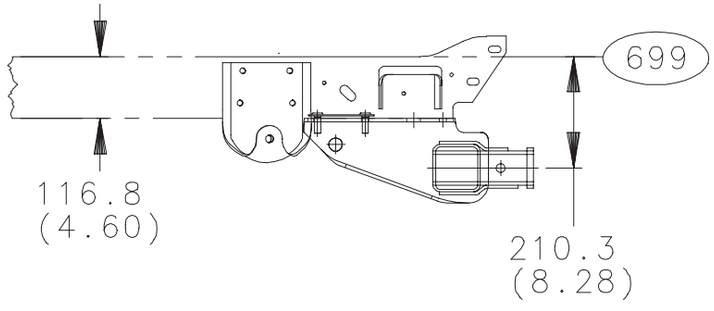


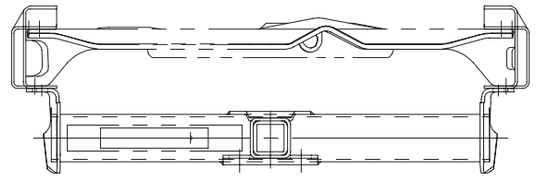


C/K 10706 Utility, Platform Hitch Mounting

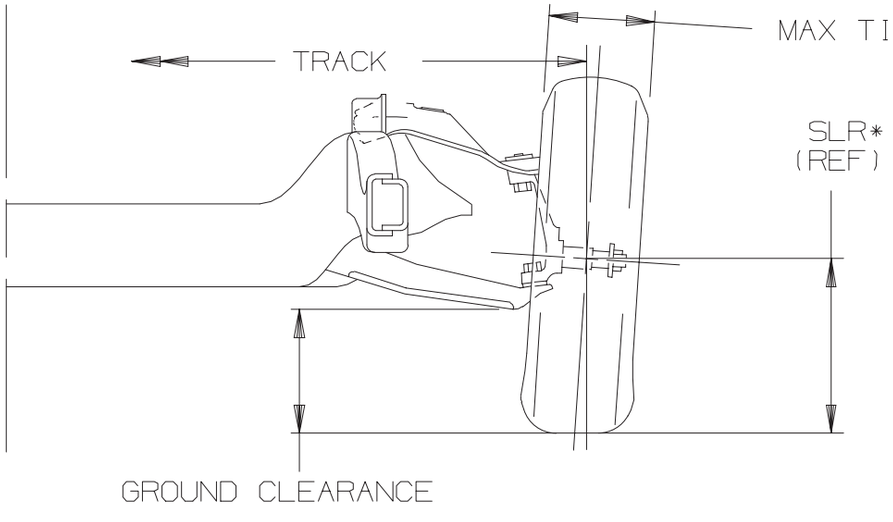








C 1500/2500/3500 Front Axle/Tire Data Chart, 2 Wheel Drive



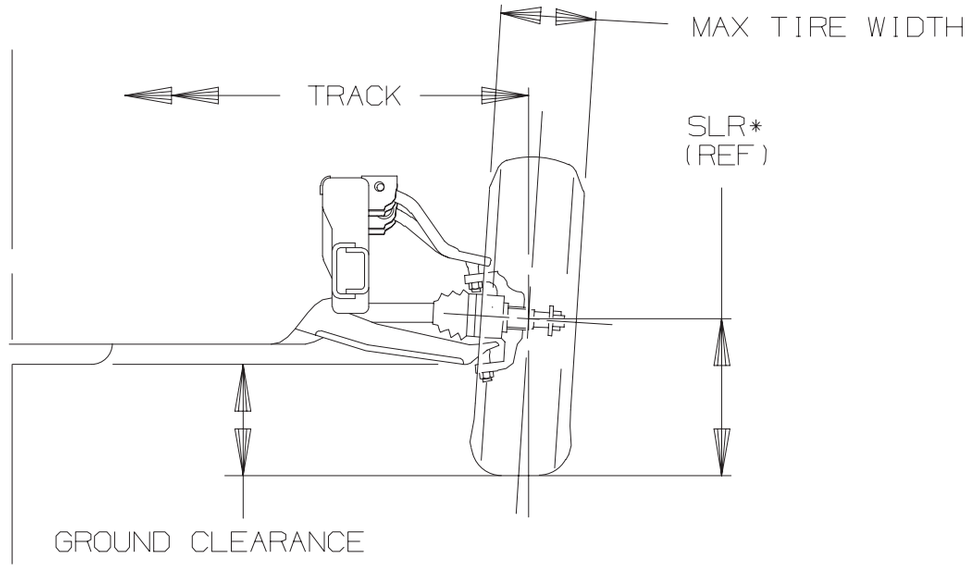
*MINIMUM GROUND CLEARANCE TO BE CALCULATED BY USING GROSS AXLE WEIGHT AND RECOMMENDED TIRE PRESSURE

( ) = INCHES

= FRT GROSS AXLE WEIGHT RATE

MODEL	TIRE	MAX GVW	REAR WHEEL	TRACK	WHEEL OFFSET	GROUND CLEARANCE	MAX TIRE WIDTH
C10053	P235/75R15	6200	SINGLE	10753 1616.0 10953 1590.0	0	175.1 (6.89)	252.0 (9.92)
C10706	P235/75R15	6300	SINGLE	1616.0	0/13	191.9 (7.56)	252.0 (9.92)
C10906	P235/75R15	6800	SINGLE	1590.0	0	181.0 (7.13)	252.0 (9.92)
C20053	LT225/75R16	7200	SINGLE	1590.0	17.0	195.2 (7.69)	239.0 (9.41)
	LT245/75R16	7200	SINGLE	1590.0	17.0	203.3 (8.00)	256.0 (10.08)
	LT245/75R16	8600	SINGLE	1607.0	17.0	204.2 (8.04)	256.0 (10.08)
C20906	LT245/75R16	8600	SINGLE	1607.0	17.0	219.7 (8.64)	256.0 (10.08)
C30900	LT225/75R16	10000	DUAL	1635.0	127.0	194.1 (7.64)	239.0 (9.41)
	LT245/75R16	9000	SINGLE	1607.0	17.0	204.2 (8.04)	256.0 (10.08)
	7.50-16LT	10000	DUAL	1635.0	127.0	226.9 (8.93)	244.0 (9.61)
C30943	LT225/75R16	9600	SINGLE	1607.0	17.0	189.3 (7.45)	239.0 (9.41)
	LT225/75R16	10000	DUAL	1635.0	127.0	188.6 (7.43)	234.0 (9.21)
	LT245/75R16	9000	SINGLE	1607.0	17.0	201.5 (7.93)	256.0 (10.08)
	7.50-16LT	10000	DUAL	1635.0	127.0	222.1 (8.74)	244.0 (9.61)
C31003	LT225/75R16	10000/11000	DUAL	1635.0	127.0	191.1 (7.52)	234.0 (9.21)
	7.50-16LT	10000/11000	DUAL	1635.0	127.0	222.1 (8.74)	244.0 (9.61)
C31403	LT225/75R16	10000/11000	DUAL	1635.0	127.0	191.1 (7.52)	234.0 (9.21)
	7.50-16LT	10000/11000	DUAL	1635.0	127.0	222.1 (8.74)	244.0 (9.61)

K 1500/2500/3500 Front Axle/Tire Data Chart, 4 Wheel Drive

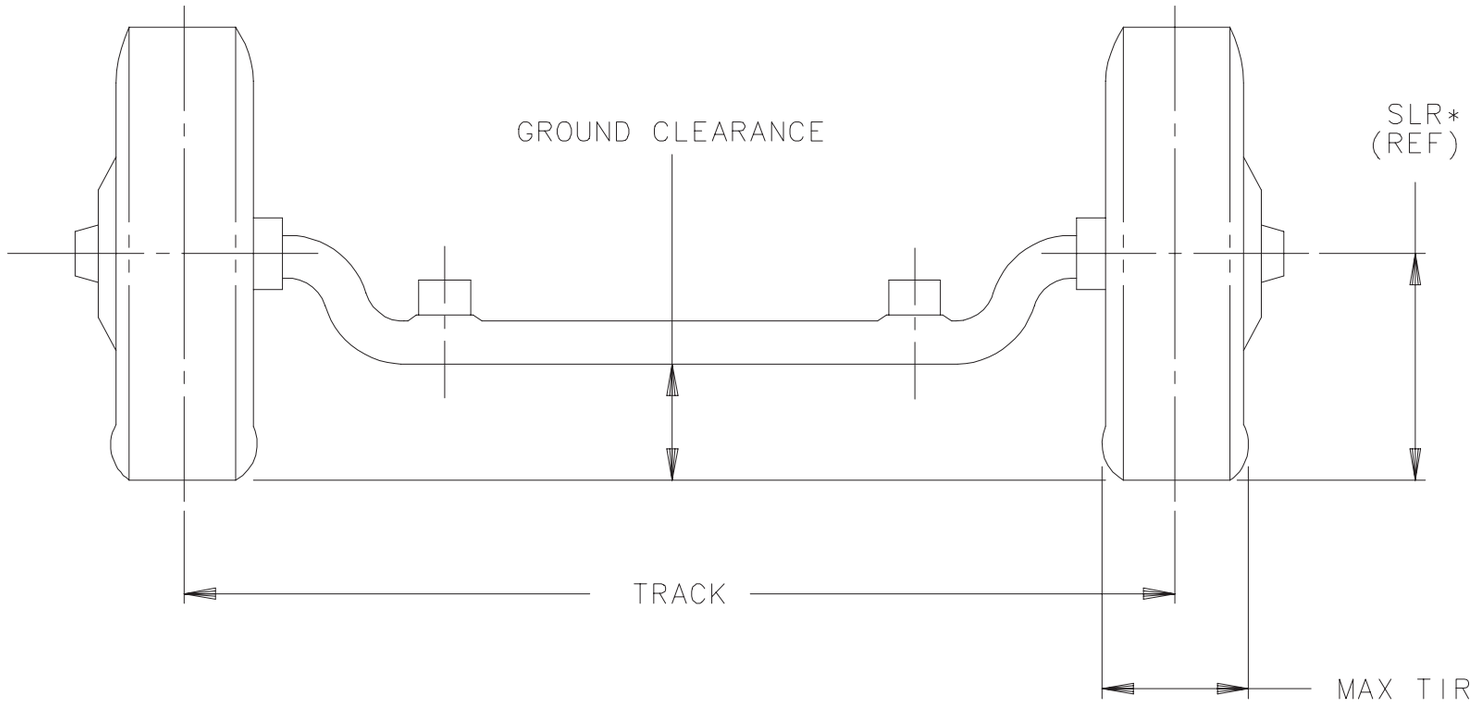


*MINIMUM GROUND CLEARANCE TO BE CALCULATED BY USING GROSS AXLE WEIGHT AND RECOMMENDED TIRE PRESSURE

( ) = INCHES

MODEL	TIRE	MAX GVW	REAR WHEEL	TRACK	WHEEL OFFSET	GROUND CLEARANCE	MAX TIRE WIDTH
K10516	P245/75R16	6250/6450	SINGLE	1628.0	50.0/44.0	252.1 (9.93)	256.0 (10.08)
	P265/75R16	6250/6450	SINGLE	1628.0	50.0/44.0	268.1 (10.56)	276.0 (10.87)
	LT245/75R16	6250/6450	SINGLE	1628.0	50.0/44.0	262.1 (10.32)	256.0 (10.08)
K10053	P245/75R16	6200 6600/6800	SINGLE	1628.0	50.0/44.0	223.6 (8.80)	256.0 (10.08)
	P265/75R16	6200 6600/6800	SINGLE	1628.0	50.0/44.0	237.6 (9.35)	276.0 (10.87)
	LT245/75R16	6200 6600/6800	SINGLE	1628.0	50.0/44.0	223.6 (8.80)	256.0 (10.08)
K10706	P245/75R16	6800	SINGLE	1590.0	50.0/44.0	223.6 (8.80)	256.0 (10.08)
K10906	P245/75R16	7200	SINGLE	1628.0	50.0/44.0	244.1 (9.61)	256.0 (10.08)
	LT245/75R16	7200	SINGLE	1628.0	50.0/44.0	253.1 (9.96)	256.0 (10.08)
	LT245/75R16	8050	SINGLE	1628.0	50.0/44.0	230.6 (9.08)	256.0 (10.08)
K20053	LT245/75R16	7200	SINGLE	1628.0	17.0	229.0 (9.02)	239.0 (9.41)
	LT245/75R16	8600	SINGLE	1742.0	17.0	160.6 (6.32)	256.0 (10.08)
K20906	LT245/75R16	8600	SINGLE	1742.0	17.0	193.4 (7.61)	256.0 (10.08)
K30900	LT245/75R16	9200	SINGLE	1742.0	17.0	160.6 (6.32)	256.0 (10.08)
	LT225/75R16	10000	DUAL	1757.0	127.0	150.5 (5.93)	239.0 (9.41)
	7.50-16LT	10000	DUAL	1757.0	127.0	184.8 (7.28)	244.0 (9.61)
K30943	LT245/75R16	9000	SINGLE	1742.0	17.0	186.1 (7.33)	256.0 (10.08)
	LT225/75R16	10000	DUAL	1757.0	127.0	176.2 (6.94)	234.0 (9.21)
	7.50-16LT	10000	DUAL	1757.0	127.0	209.5 (8.25)	244.0 (9.61)
K31003	LT225/75R16	10000/12000	DUAL	1757.0	127.0	148.0 (5.83)	234.0 (9.21)
	7.50-16LT	10000/12000	DUAL	1757.0	127.0	179.0 (7.05)	244.0 (9.61)
K31403	LT225/75R16	10000/12000	DUAL	1757.0	127.0	148.0 (5.83)	234.0 (9.21)
	7.50-16LT	10000/12000	DUAL	1757.0	127.0	179.0 (7.05)	244.0 (9.61)

C 3500HD Front Axle/Tire Data Chart, Chassis Cab, 15,000 GVWR

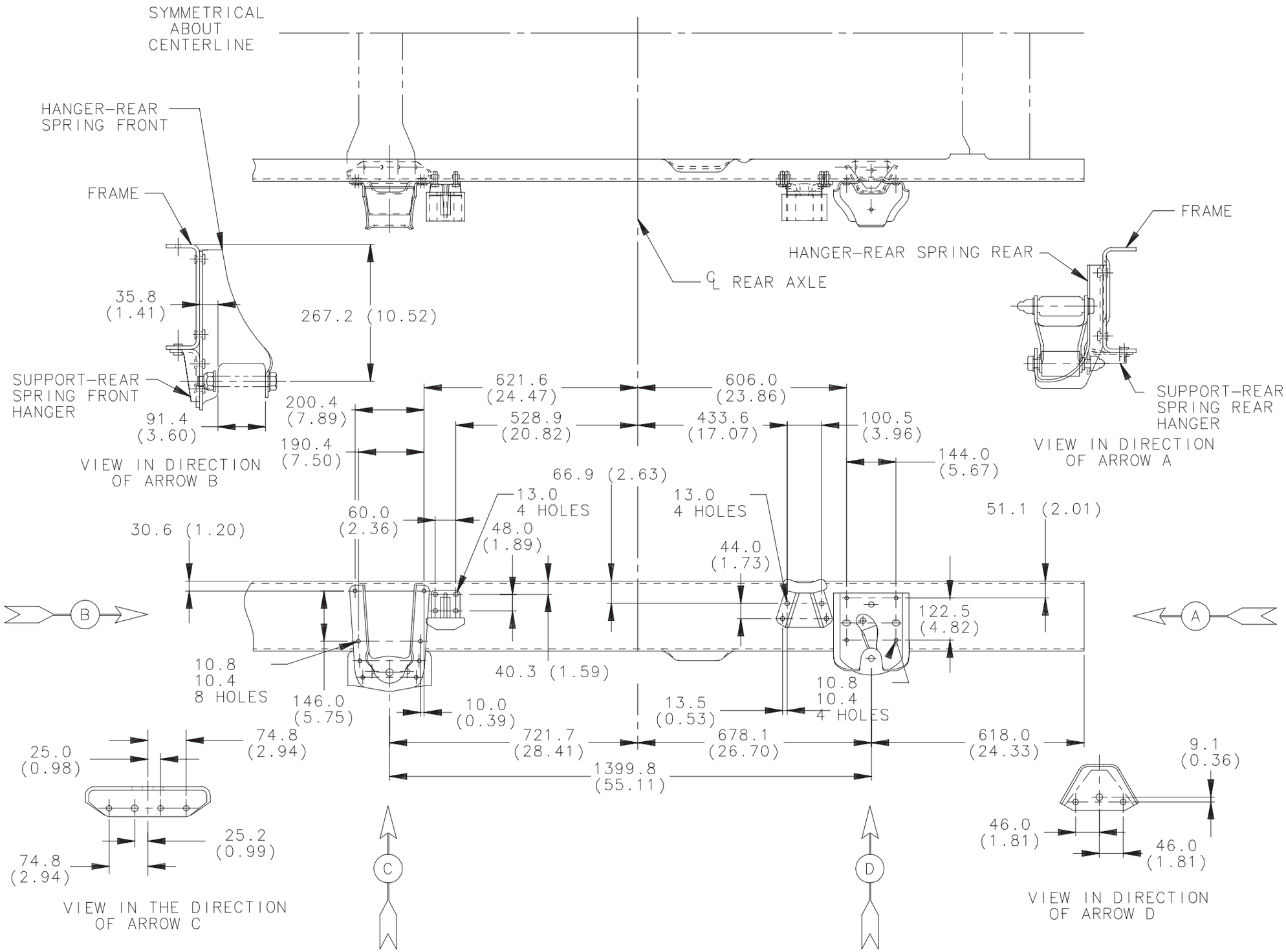


MODEL	TIRE	MAX GVW	REAR WHEEL	TRACK	WHEEL OFFSET	GROUND CLEARANCE	MAX TIRE WIDTH
C31003	LT225/70R19.5	15000	DUAL	1771.0	127.0	274.4 (10.80)	228.0 (8.98)
C31403	LT225/70R19.5	15000	DUAL	1771.0	127.0	274.4 (10.80)	228.0 (8.98)
C31803	LT225/70R19.5	15000	DUAL	1771.0	127.0	274.4 (10.80)	228.0 (8.98)

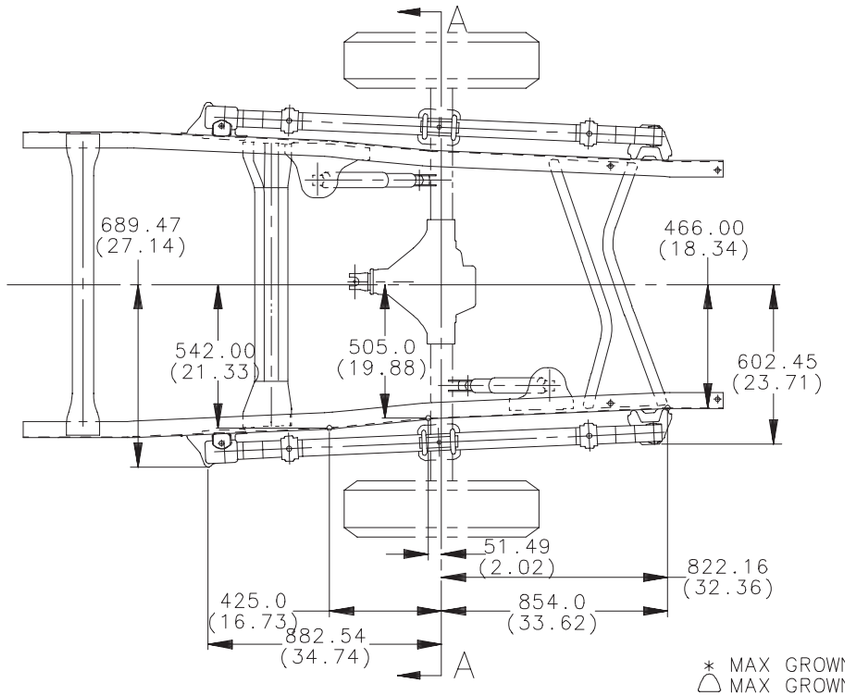
*MINIMUM GROUND CLEARANCE TO BE CALCULATED BY USING GROSS AXLE WEIGHT AND RECOMMENDED TIRE PRESSURE

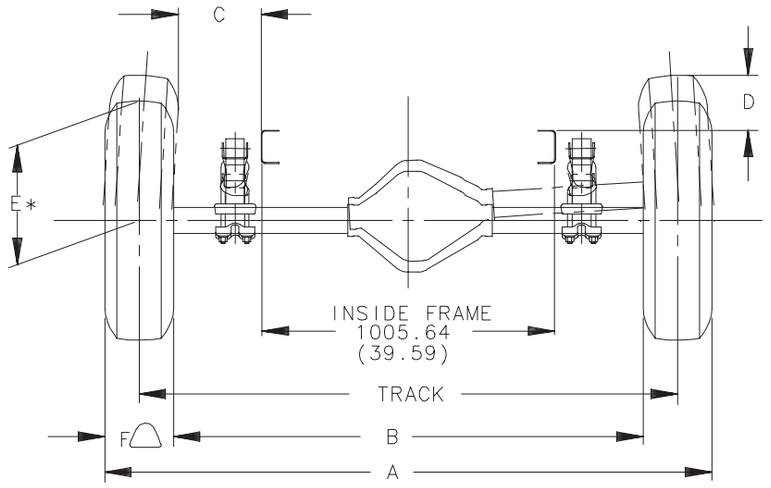
( ) = INCHES

C 3500HD Rear Suspension Hanger Bracket Locations, Chassis Cab, 15,000 GVWR



C/K 1500 Series, Rear Axle/Tire Data Chart





SECTION A—A
ROTATED 90°

( )=INCHES

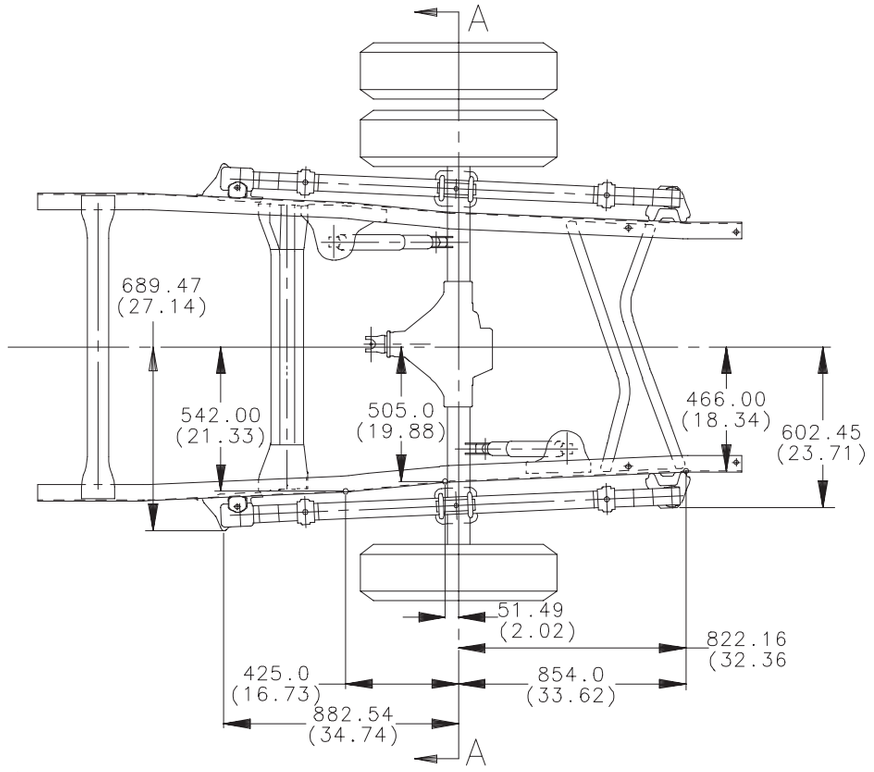
* MAX GROWN TIRE RADIUS ON NARROWEST RIM
△ MAX GROWN TIRE WIDTH ON WIDEST RIM

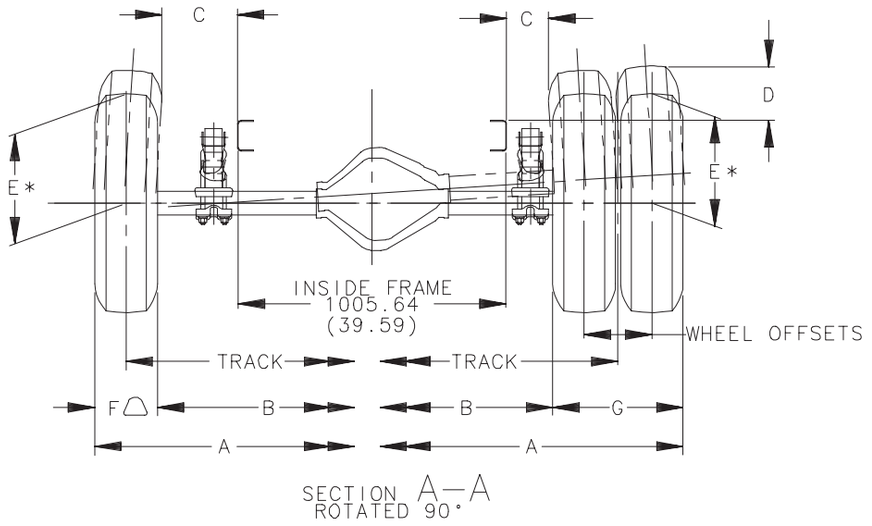
TIRE CHAINS NOT TO BE USED WITH K1500 AND LT265/75R16 TIRES

SINGLE WHEELS
A = TRACK + F
B = TRACK − F

SERIES	TIRES	GVW RANGE	REAR WHEEL	TRACK	WHEEL OFFSET	DIM A	DIM B	DIM C	DIM D	DIM E *	DIM F △
C1500	P225/70R15	5600	SINGLE	1642.0	0.0	1886.0	1398.0	169.5	225.0	358.5	244.0
	P225/75R15	5600	SINGLE	1642.0	0.0	1886.0	1398.0	169.5	236.0	369.5	244.0
	P235/75R15	5600	SINGLE	1642.0	0.0	1894.0	1390.0	160.5	244.0	374.5	252.0
	P235/75R15	5600–6800	SINGLE	1616.0	13.0	1868.0	1364.0	148.0	243.0	374.5	252.0
	P275/60R15	5600–6200	SINGLE	1642.0	0.0	1925.0	1359.0	145.5	235.0	355.5	283.0
K1500	P245/75R16	6100–6450	SINGLE	1614.0	44.0	1870.0	1358.0	142.5	232.0	400.0	256.0
	P245/75R16	6200–6800	SINGLE	1602.0	44.0	1858.0	1346.0	136.5	232.0	400.0	256.0
	P245/75R16	6800	SINGLE	1616.0	44.0	1872.0	1360.0	142.5	232.0	400.0	256.0
	P245/75R16	7200	SINGLE	1622.0	50.0	1870.0	1364.0	142.5	232.0	400.0	256.0
	P265/75R16	6100–6450	SINGLE	1614.0	50.0	1890.0	1338.0	131.5	241.0	413.5	276.0
	P265/75R16	6200–6800	SINGLE	1602.0	50.0	1878.0	1326.0	125.5	249.0	413.5	276.0
	LT245/75R16	6100–6450	SINGLE	1614.0	50.0	1870.0	1358.0	142.5	232.0	400.0	256.0
	LT245/75R16	6200–6800	SINGLE	1602.0	50.0	1858.0	1346.0	136.5	232.0	400.0	256.0
	LT245/75R16	7200–8050	SINGLE	1622.0	50.0	1878.0	1366.0	142.5	232.0	400.0	256.0

C/K 200/300 Rear Axle/Tire Data Chart, Pickup





SECTION A–A
ROTATED 90°

( )=INCHES
RR AXLE 9.5" RING GEAR
@ RR AXLE 10.5" RING GEAR

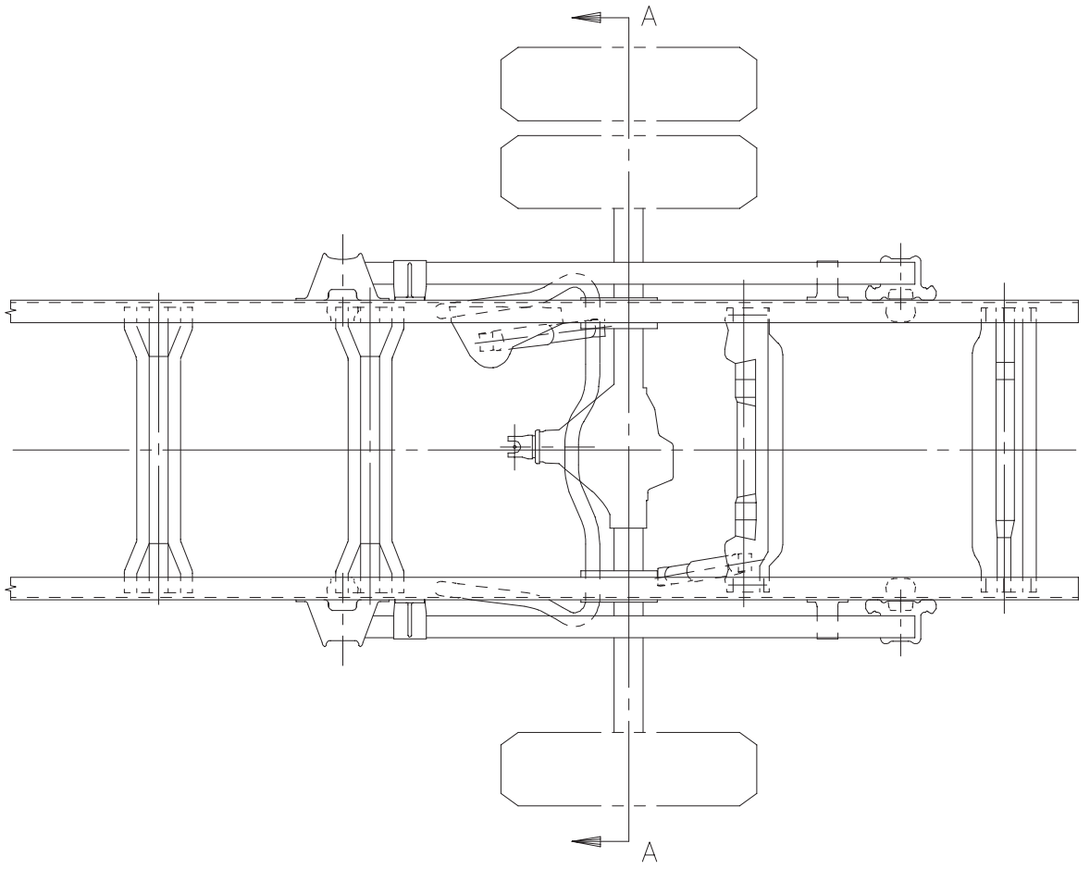
* MAX GROWN TIRE RADIUS ON NARROWEST RIM
△ MAX GROWN TIRE WIDTH ON WIDEST RIM

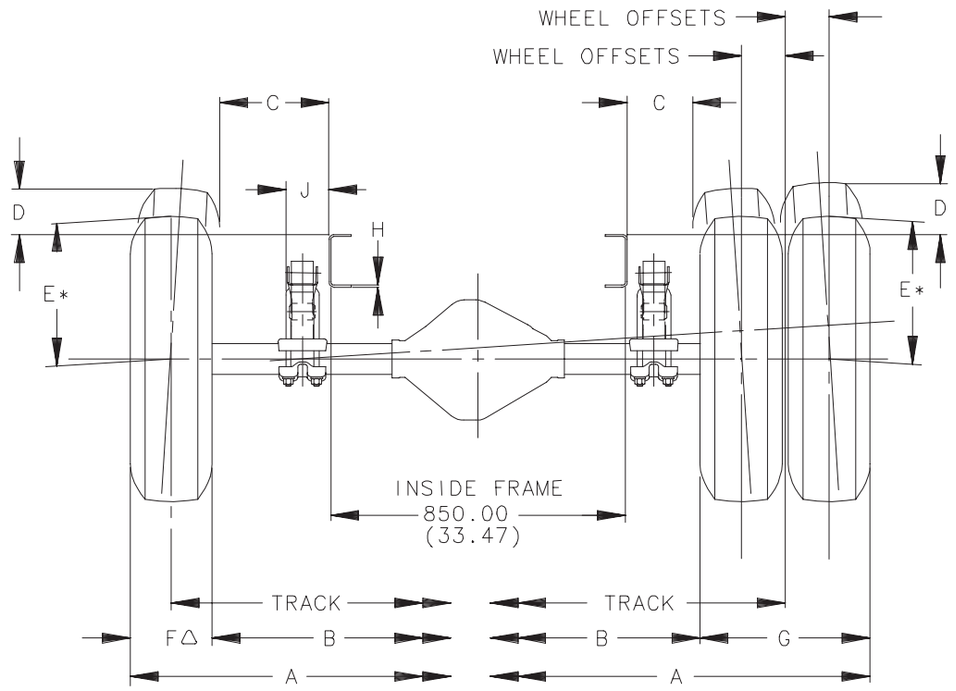
TIRE CHAINS NOT TO BE USED WITH K1500 AND LT265/75R16 TIRES OR RPO R05 DUAL REAR WHEELS

FOR DUAL WHEELS G = (2*WHEEL OFFSETS)+F
SINGLE WHEELS
A = TRACK + F
B = TRACK – F
DUAL WHEELS
A = TRACK + G
B = TRACK – G

	SERIES	TIRES	GVW RANGE	REAR WHEEL	TRACK	WHEEL OFFSET	DIM A	DIM B	DIM C	DIM D	DIM E *	DIM F △	DIM G
	C2500	LT225/75R16	7200	SINGLE	1616.0	13.0	1855.0	1377.0	150.0	253.0	384.0	239.0	
		LT245/75R16	7200	SINGLE	1616.0	13.0	1872.0	1360.0	141.5	270.5	400.0	256.0	
	K2500	LT225/75R16	7200	SINGLE	1622.0	50.0	1861.0	1383.0	153.0	223.5	384.0	239.0	
		LT245/75R16	7200	SINGLE	1622.0	50.0	1878.0	1366.0	144.5	238.0	400.0	256.0	
#	C2500	LT245/75R16	8600	SINGLE	1624.0	17.0	1880.0	1386.0	153.5	221.0	400.0	256.0	
#	K2500	LT245/75R16	8600	SINGLE	1624.0	17.0	1880.0	1386.0	153.0	212.5	400.0	256.0	
@	C2500	LT245/75R16	8600	SINGLE	1652.8	17.0	1908.8	1414.8	167.9	221.0	400.0	256.0	
@	K2500	LT245/75R16	8600	SINGLE	1652.8	17.0	1908.8	1414.8	167.9	212.5	400.0	256.0	
	C3500	LT245/75R16	9000–9600	SINGLE	1634.0	17.0	1890.0	1396.0	158.0	221.0	400.0	256.0	
	K3500	LT245/75R16	9200	SINGLE	1634.0	17.0	1890.0	1396.0	158.0	212.5	400.0	256.0	
	C3500	LT225/75R16	10000	DUAL	1853.0	127.0	2343.0	1363.0	160.0	171.0	384.0	236.0	490.0
		7.50 X 16LT	10000	DUAL	1853.0	127.0	2343.0	1363.0	160.0	201.5	430.0	236.0	490.0
	K3500	LT225/75R16	10000	DUAL	1853.0	127.0	2343.0	1363.0	160.0	161.5	384.0	236.0	490.0
		7.50 X 16LT	10000	DUAL	1853.0	127.0	2343.0	1363.0	160.0	192.0	430.0	236.0	490.0

C/K 300 Rear Axle/Tire Data Chart, Chassis Cab





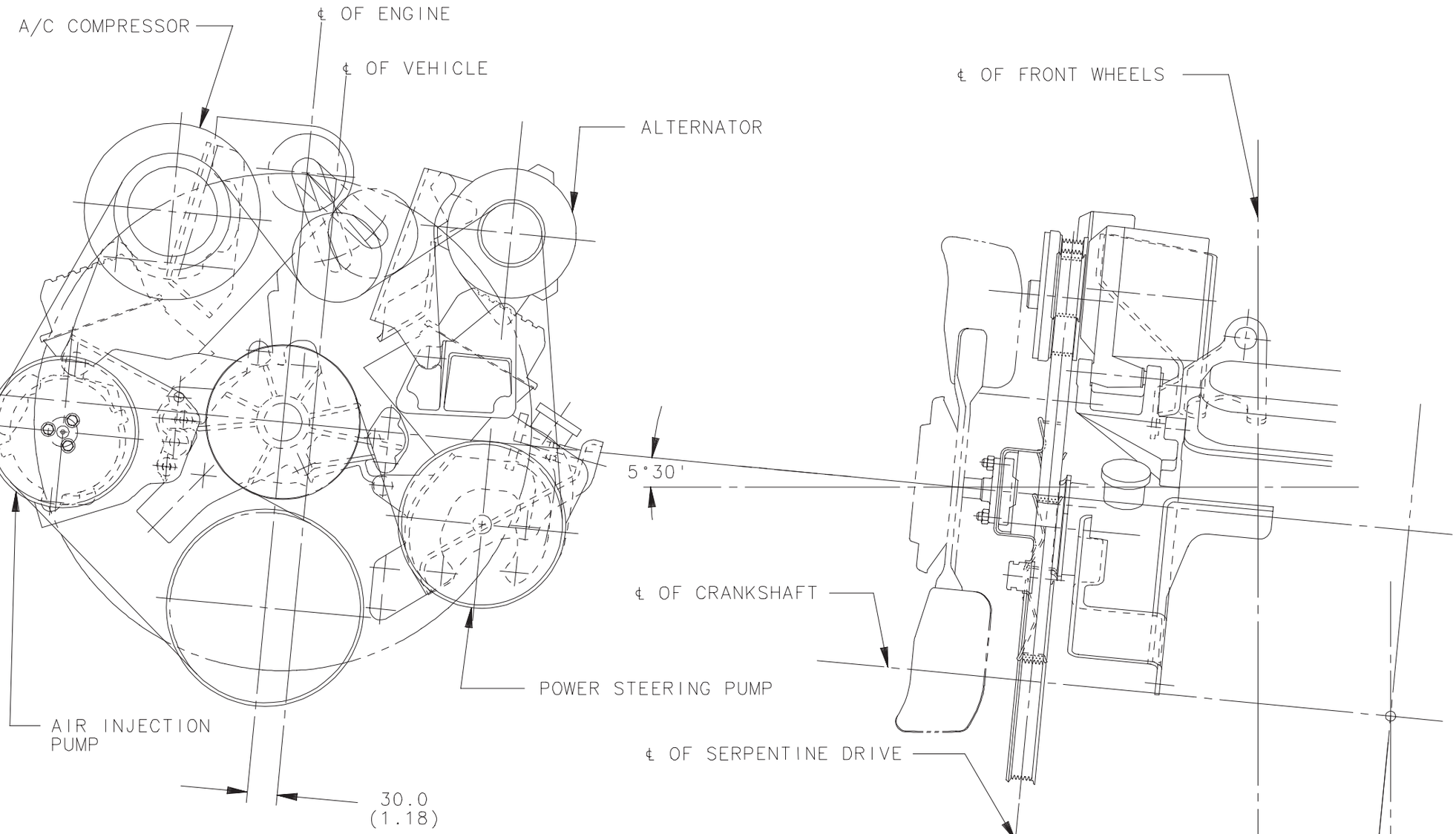
SECTION A–A
ROTATED 90°

( )=INCHES * MAX GROWN TIRE RADIUS ON NARROWEST RIM △ MAX GROWN TIRE WIDTH WITH WIDEST RIM OPT GTY WIDE TRACK Φ SPECIAL EQUIP. OPT. 8S9

G = (2*WHEEL OFFSET)+F
A = TRACK + G
B = TRACK – G

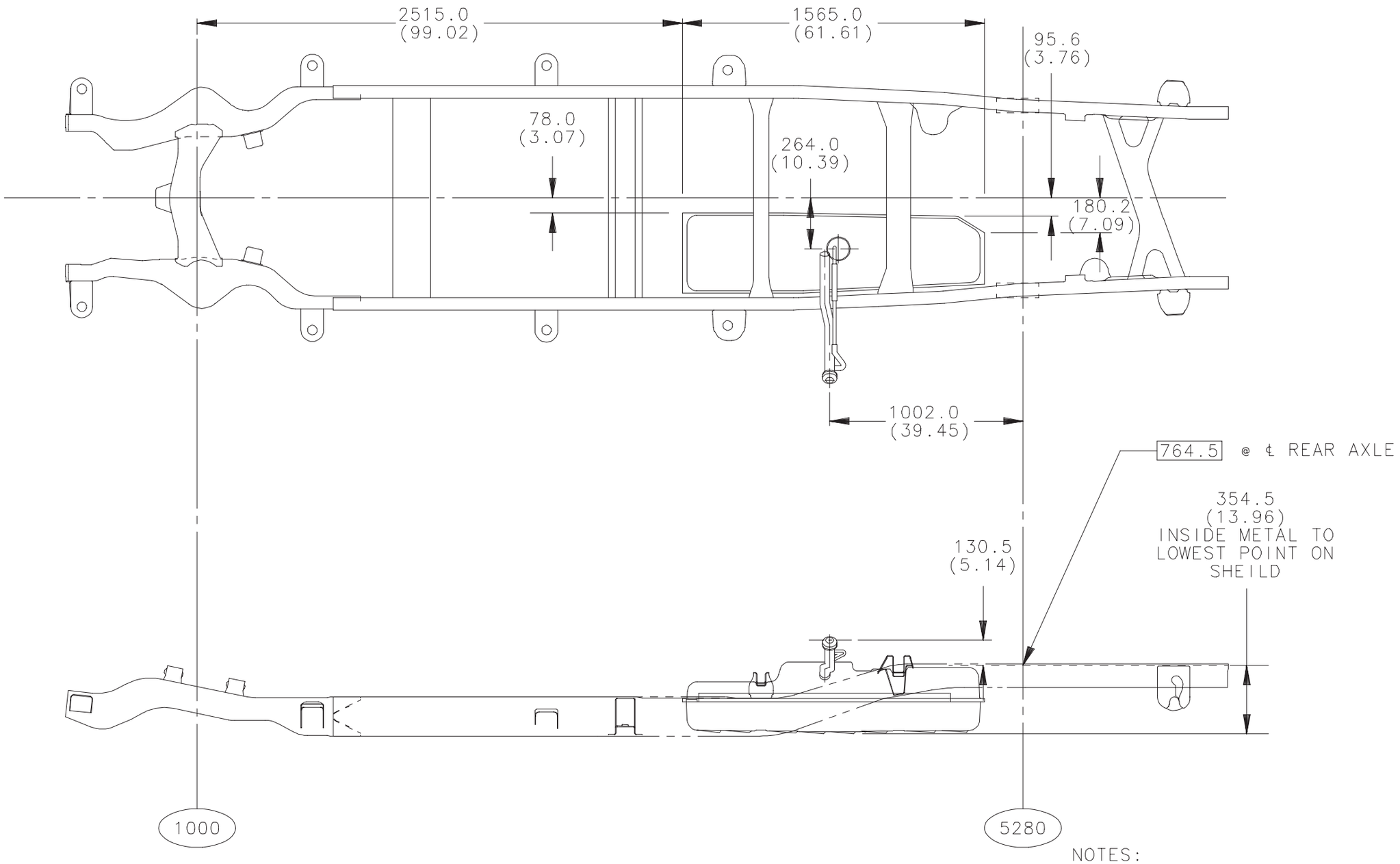
SERIES	TIRES	GVW RANGE	REAR WHEEL	TRACK	WHEEL OFFEST	DIM A	DIM B	DIM C	DIM D	DIM E *	DIM F△	DIM G	DIM H	DIM J
C3500	LT245/75R16	Φ9,000 9,600	SINGLE	1705.36	17.0	1961.36	1449.36	277.0	174.0	400.0	256.0	———	6.6	126.3
K3500	LT245/75R16	Φ9,200	SINGLE	1705.36	17.0	1961.36	1449.36	277.0	174.0	400.0	256.0	———	6.6	126.3
C3500 W/O GTY	LT225/75R16	10,000 11,000	DUAL	1649.52	127.0	2139.52	1159.52	133.7	162.3 160.5	384.0	236.0	490.0	6.6	126.3
	7.50 X 16LT	10,000 11,000	DUAL	1649.52	127.0	2139.52	1159.52	133.7	193.1 191.3	430.0	236.0	490.0	6.6	126.3
K3500 W/O GTY	LT225/75R16	10,000 12,000	DUAL	1649.52	127.0	2139.52	1159.52	133.7	162.3 160.5	384.0	236.0	490.0	6.6	126.3
	7.50 X 16LT	10,000 12,000	DUAL	1649.52	127.0	2139.52	1159.52	133.7	193.1 191.3	430.0	236.0	490.0	6.6	126.3
C3500 W/ GTY	LT225/75R16	10,000 11,000	DUAL	1852.92	127.0	2342.92	1362.92	235.0	169.9 167.6	384.0	236.0	490.0	6.6	126.3
	7.50 X 16LT	10,000 11,000	DUAL	1852.92	127.0	2342.92	1362.92	235.0	200.7 198.4	430.0	236.0	490.0	6.6	126.3
K3500 W/ GTY	LT225/75R16	10,000 12,000	DUAL	1852.92	127.0	2342.92	1362.92	235.0	169.9 167.6	384.0	236.0	490.0	6.6	126.3
	7.50 X 16LT	10,000 12,000	DUAL	1852.92	127.0	2342.92	1362.92	235.0	200.7 198.4	430.0	236.0	490.0	6.6	126.3
C3500	225/70R19.5	15,000	DUAL	1696.20	127.0	2178.20	1214.20	157.2	195.0	408.1	228.0	482.0	6.6 BASE 7.6 184 W/B	140.3

C/K Truck, Engine, General Arrangement



A	ENGINE
711.6 (28.02)	L56/L65
747.2 (29.42)	L29
683.2 (26.90)	L30/L31
571.5 (22.50)	L35

C/K 30943 Pickup, Crew Cab



NOTES:

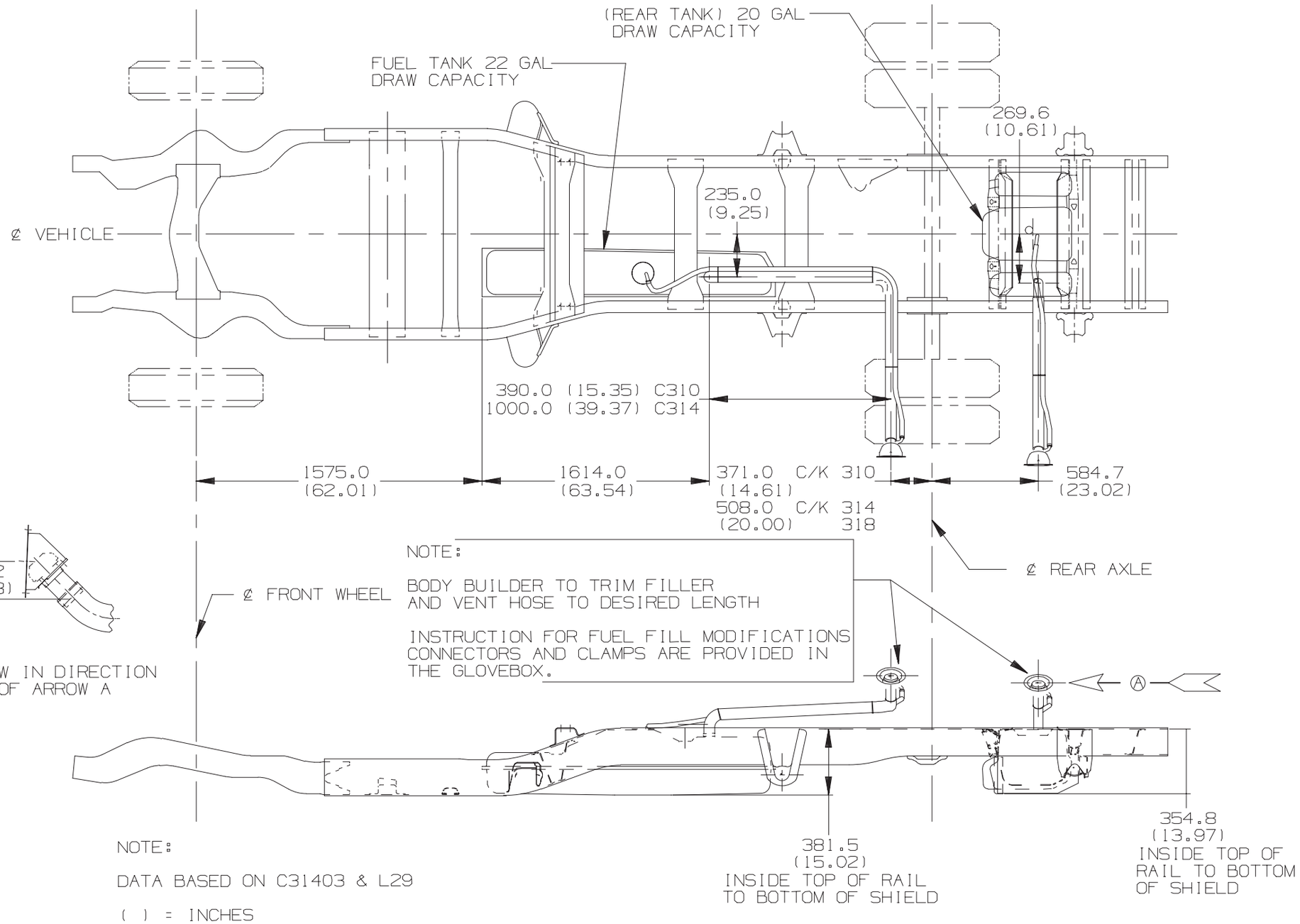
( ) = INCHES

C30943 & L05 SHOWN

UNLESS OTHERWISE
SPECIFIED ALL DIMENSIONS
ARE TO INSIDE OF METAL

C/K (310/314)03 Chassis Cab, 10,000, 11,000 and 12,000 lb. GVWR

DUAL FUEL TANKS ARE BASE EQUIPMENT. TO DELETE
REAR TANK OPTION NQZ MUST BE SPECIFIED



NOTE:

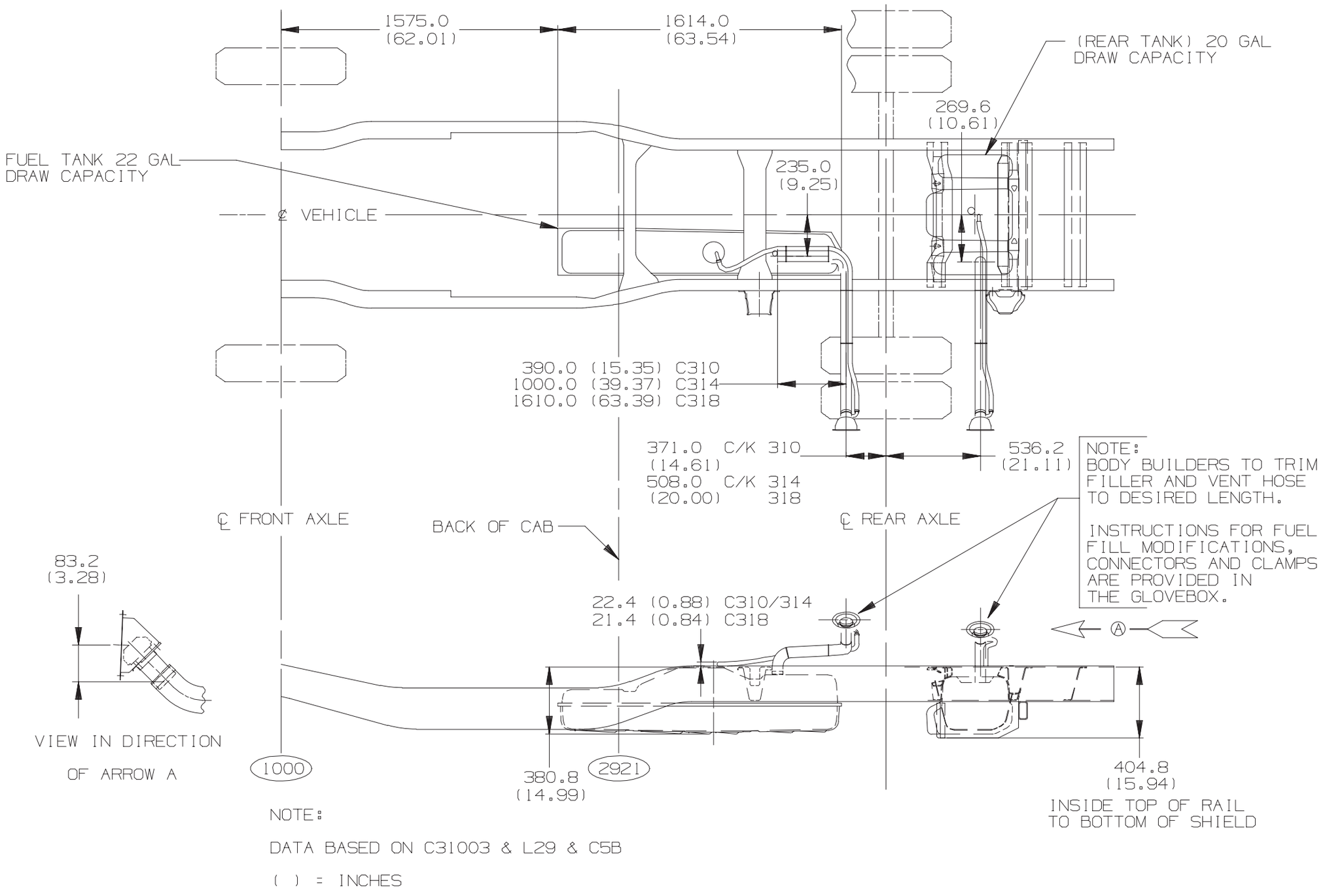
DATA BASED ON C31403 & L29

( ) = INCHES

UNLESS OTHERWISE SPECIFIED DIMENSIONS
ARE TO OUTSIDE OF METAL.

C/K (310/314/318)03 Chassis Cab, 15,000 lb. GVWR

DUAL FUEL TANKS ARE BASE EQUIPMENT. TO DELETE
REAR TANK OPTION NQZ MUST BE SPECIFIED.

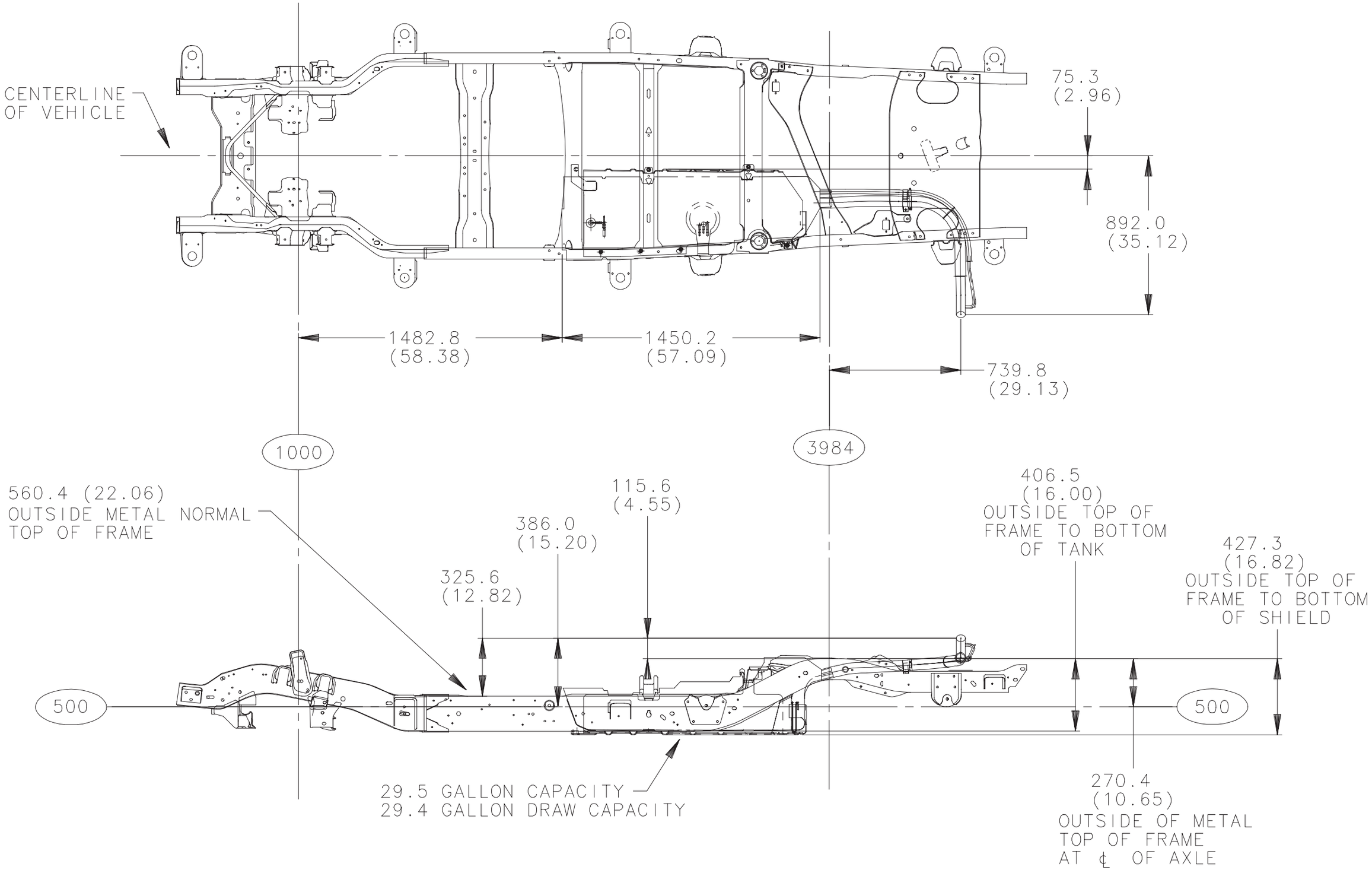


NOTE:

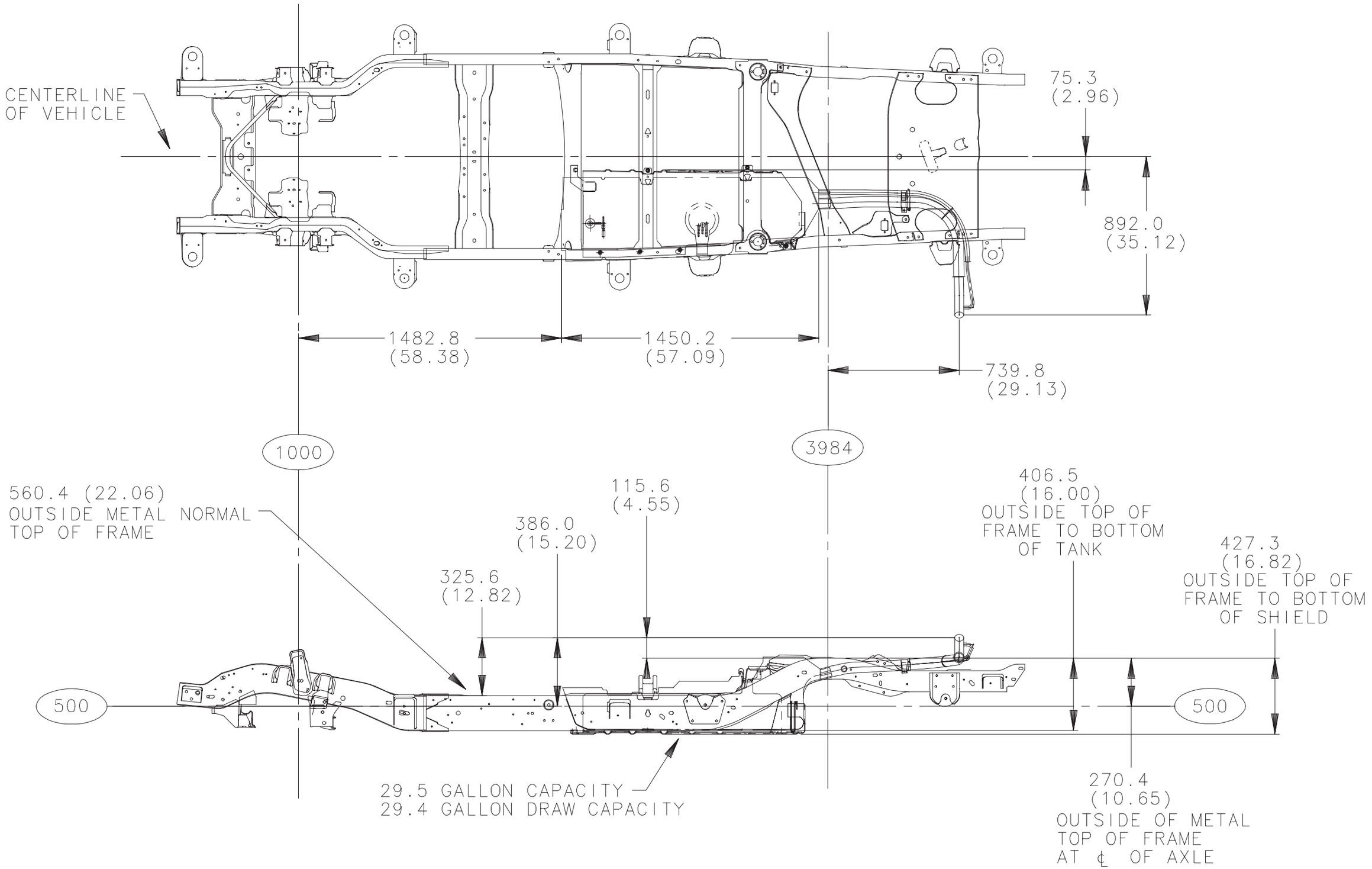
DATA BASED ON C31003 & L29 & C5B

( ) = INCHES

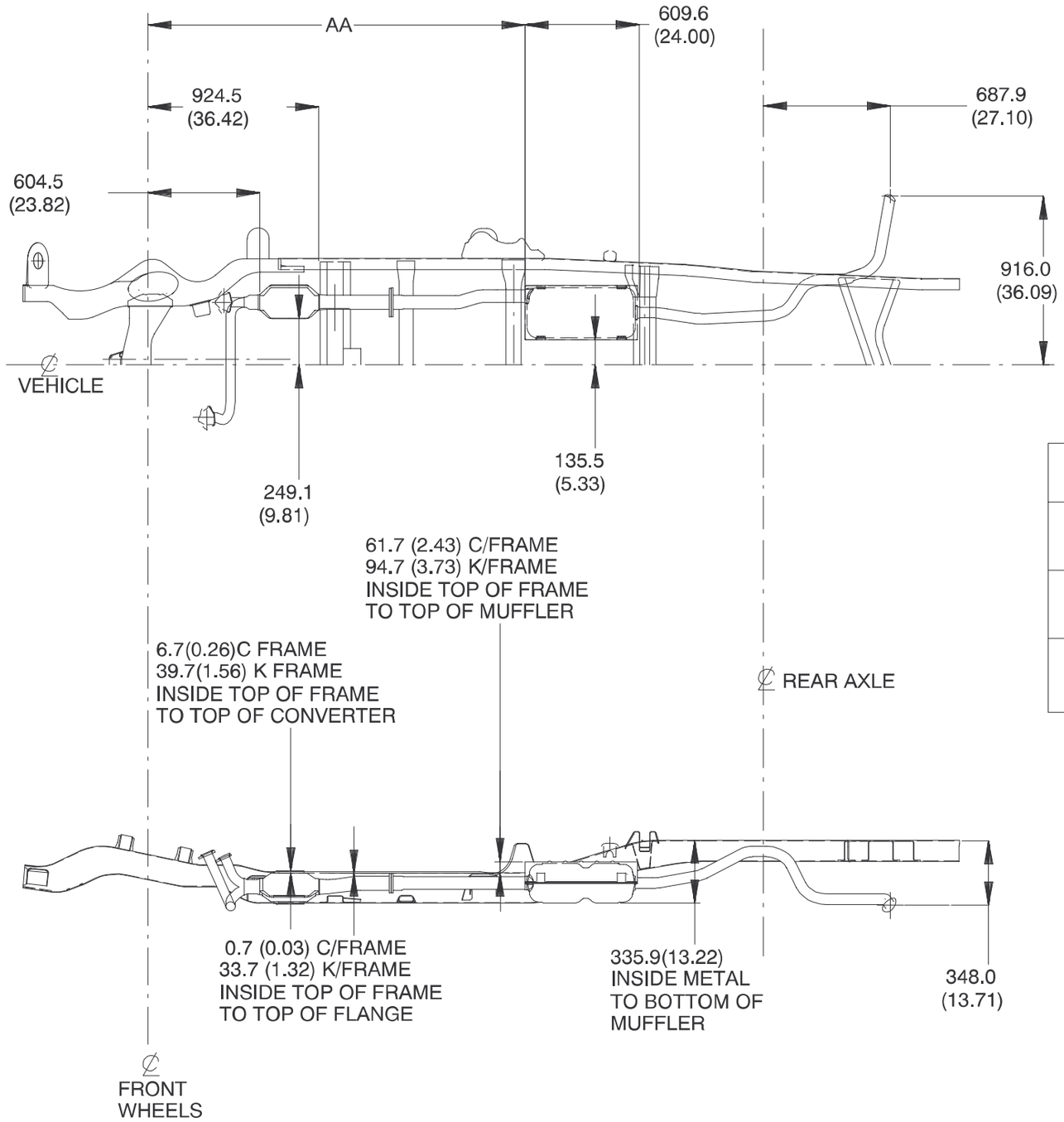
C 10706–2 Wheel Drive Utility



K 10706–4 Wheel Drive Utility



C/K (107/109)(03/53) Pickup, 4.3L Gas Engine, Option L35



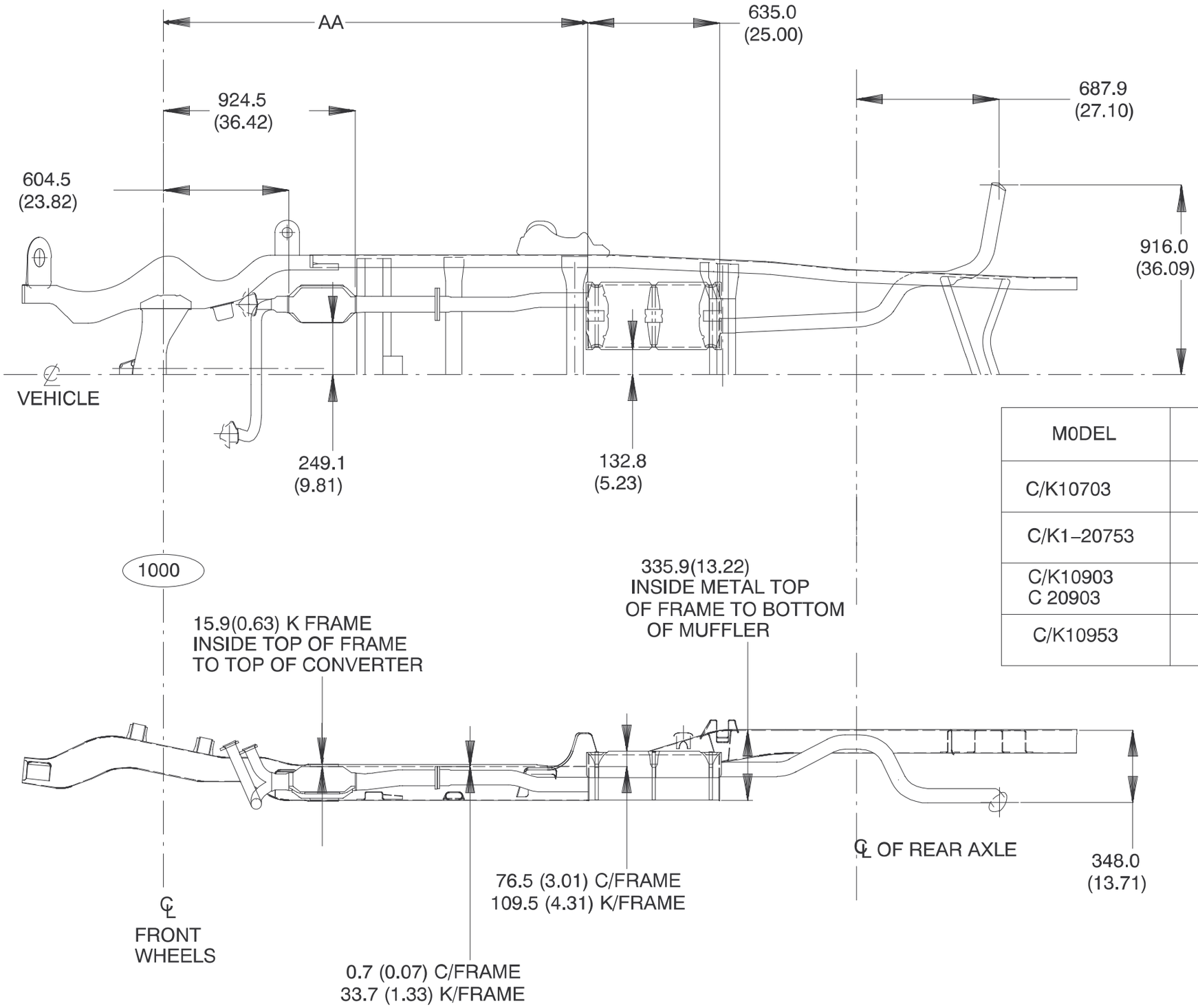
MODEL	–AA–
C/K10703	1690.4 (62.66)
C/K10753	2300.4 (90.64)
C/K10903	2045.4 (80.59)

C10903 W/L35 SHOWN

( ) = INCHES

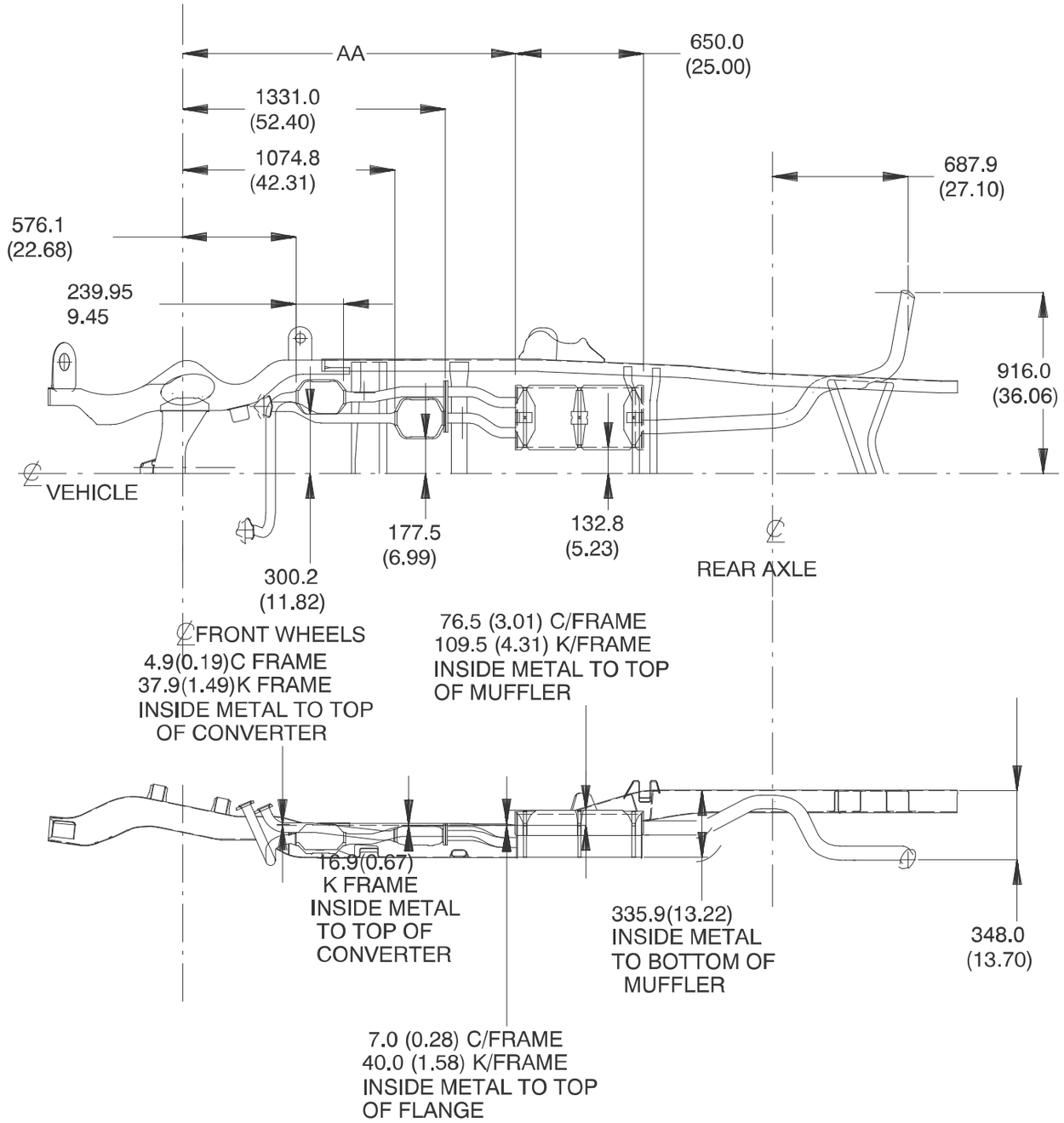
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE
OF METAL

C/K (1/2)(07/09)(03/53) Pickup, 5.0L Gas Engine, Option L30



M0DEL	AA
C/K10703	1690.4 (66.55)
C/K1–20753	2300.4 (90.57)
C/K10903 C 20903	2045.4 (80.60)
C/K10953	2655.4 (104.54)

C/K (1/2)(07/09)(03/53) Pickup, 5.7L Gas Engine, Option L31



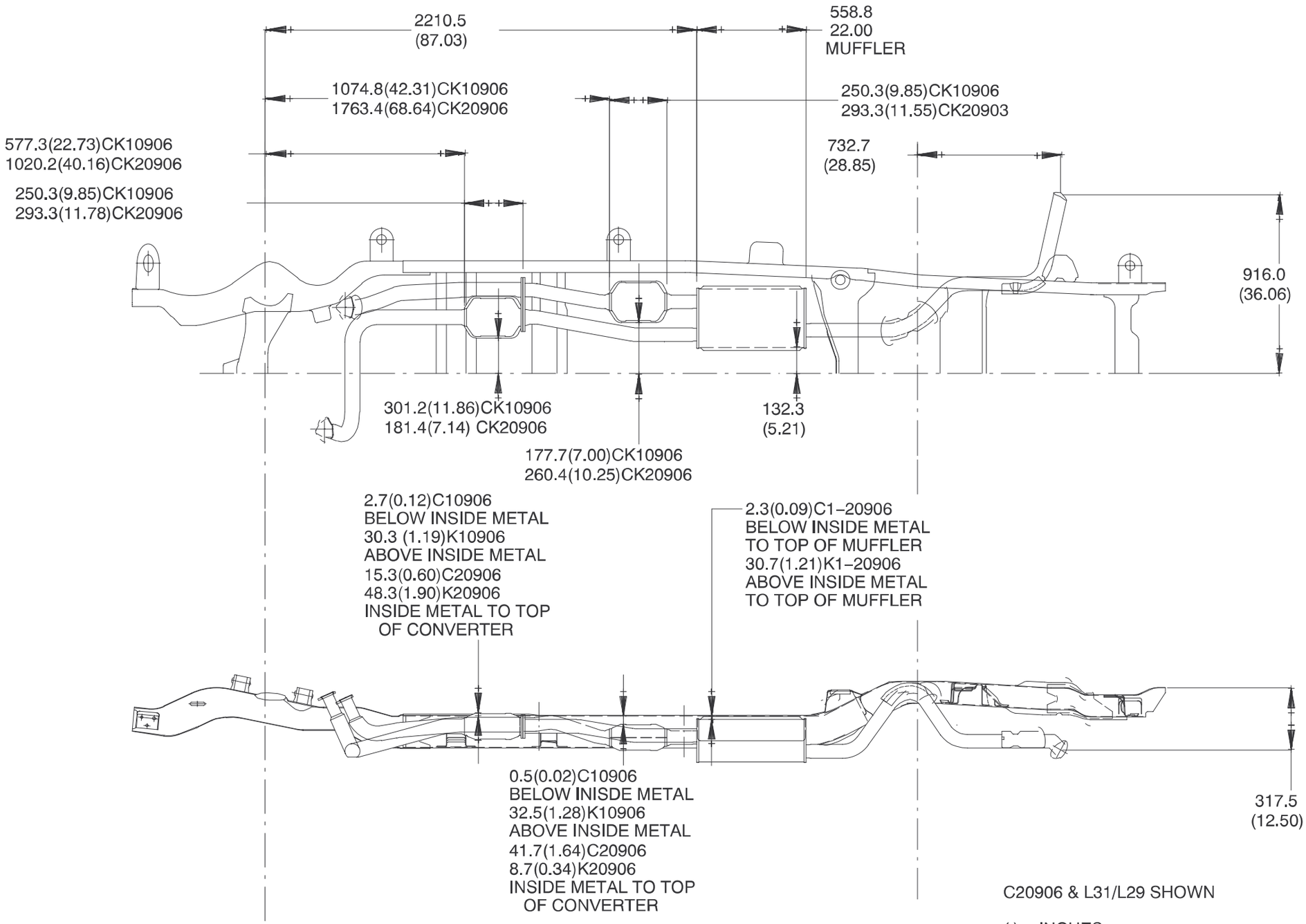
MODEL	–AA–
C/K10703	1690.4 (66.55)
C/K1–20753	2300.4 (90.57)
C/K1–20903	2045.4 (80.53)
C/K10953	2655.4 (104.54)

C10703 W/L31 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL

C/K (1/2)0906 Suburban, 5.7L Gas Engine, Option L31 and 7.4L Gas Engine, Option L29

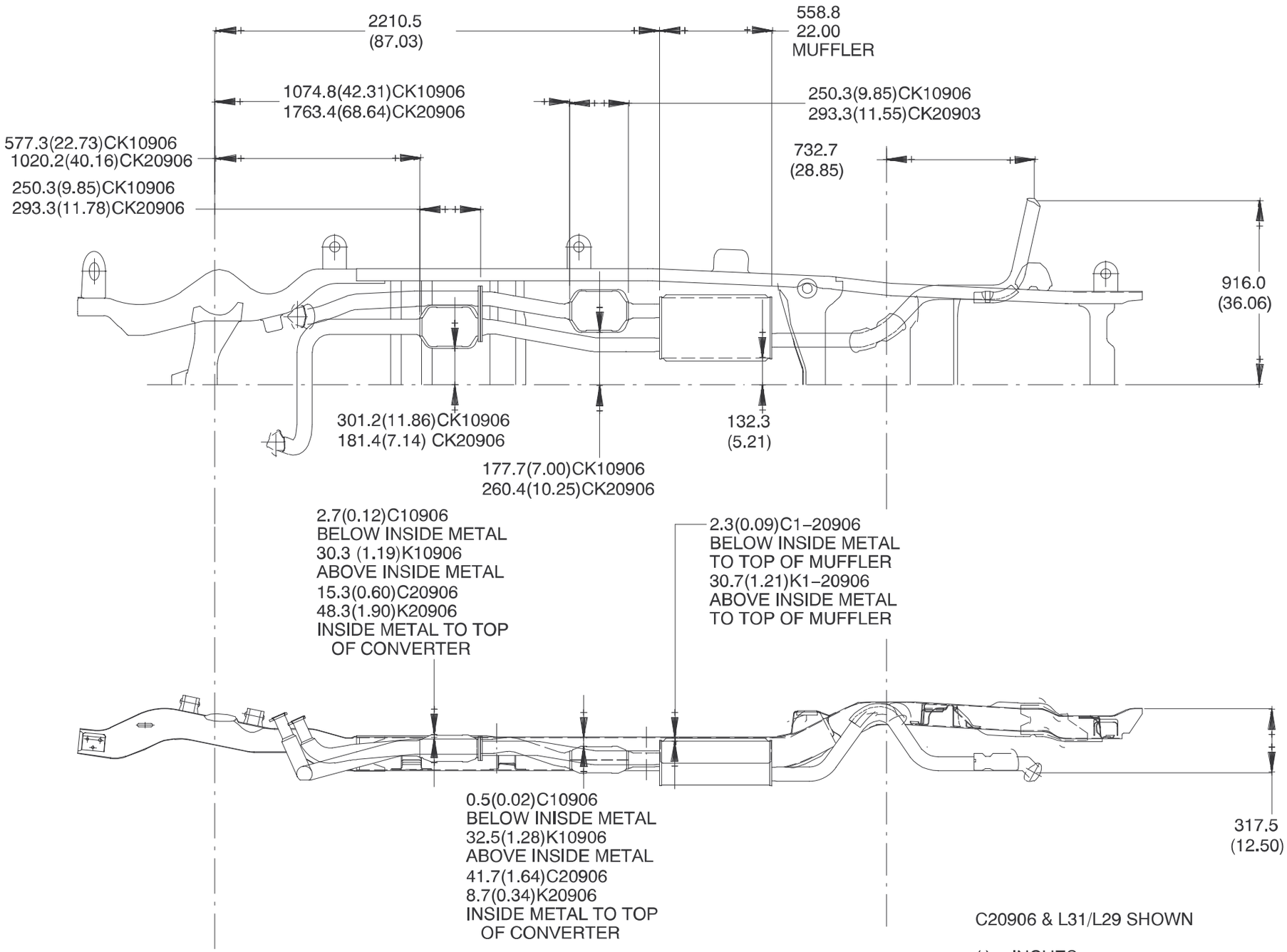


C20906 & L31/L29 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO
INSIDE OF METAL

C/K 200 & C6P–C/K 309(03/53) Pickup, 5.7L Gas Engine, Option L31 and 7.4L Gas Engine, Option L29

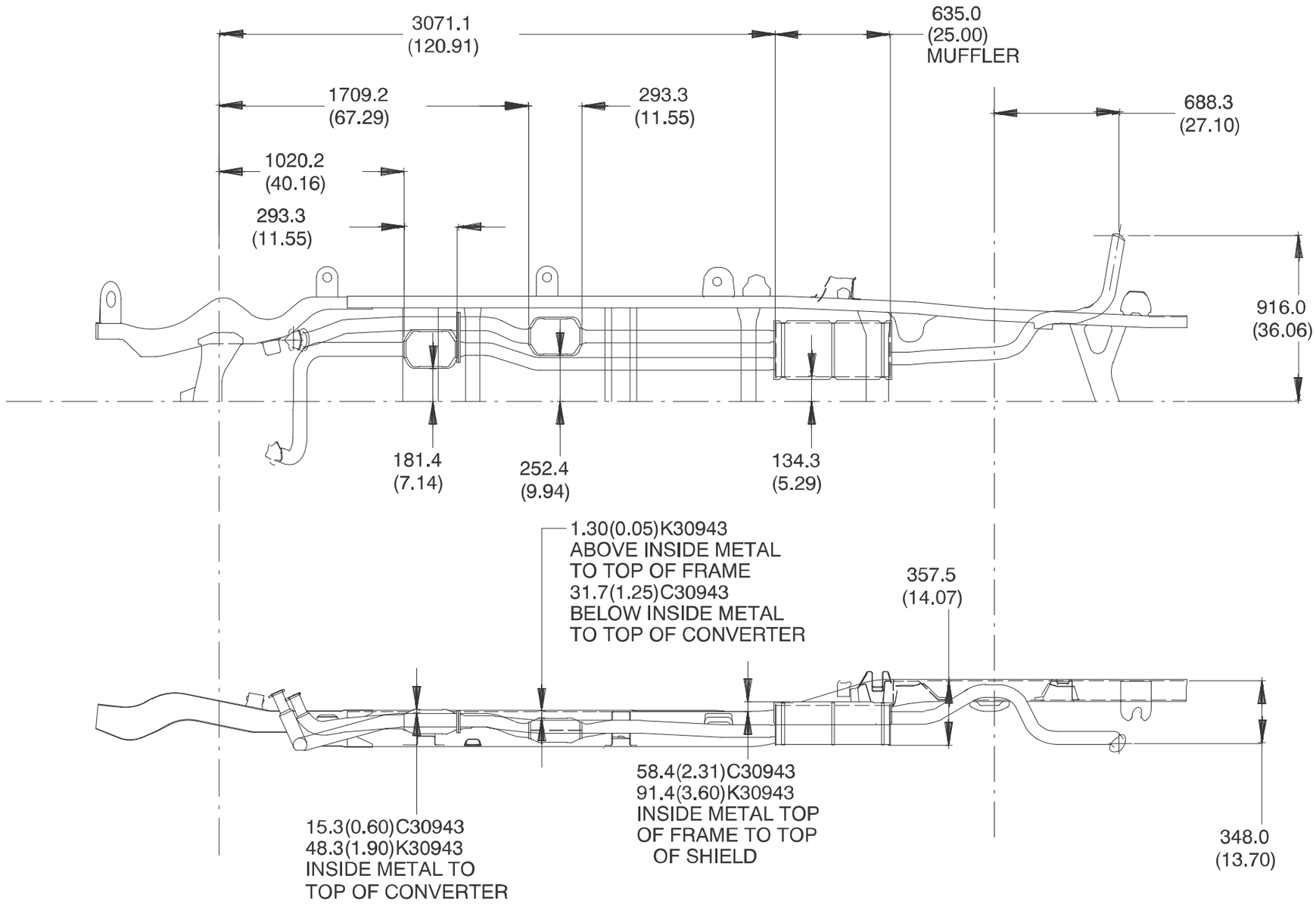


C20906 & L31/L29 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO
INSIDE OF METAL

C/K 30943 Crew Cab, 5.7L Gas Engine, Option L31 and 7.4L Gas Engine, Option L29

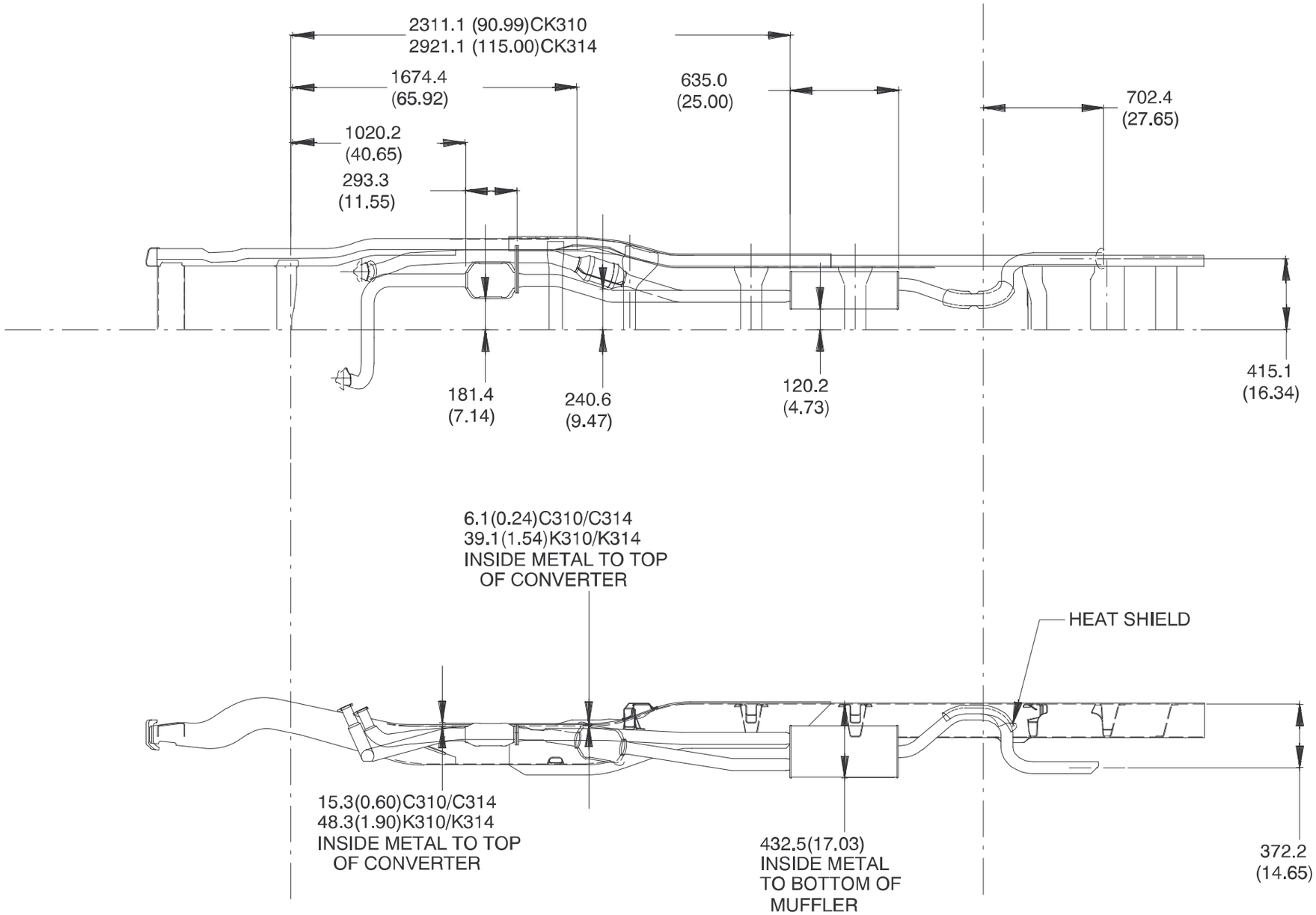


C30943 & L31/L29 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL

C/K (310/314)03 Chassis Cab, 10.000 and 12,000 lb. GVWR, 5.7L Gas Engine, Option L31 and 7.4L Gas Engine Option L29

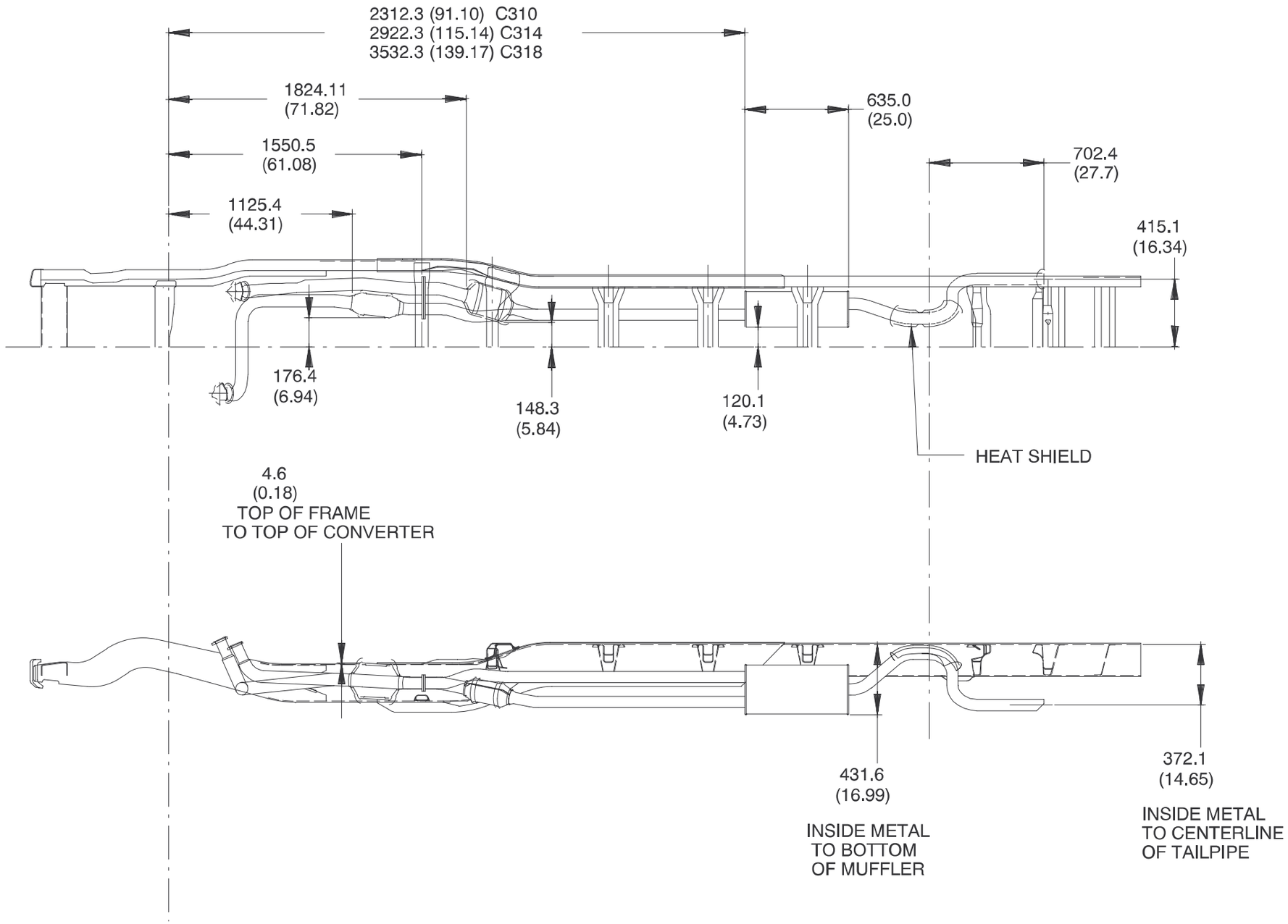


C314 & L31/L29 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE
OF METAL

C 3500HD – Chassis Cab, 15,000 GVWR, 7.4L Gas Engine, Option L29

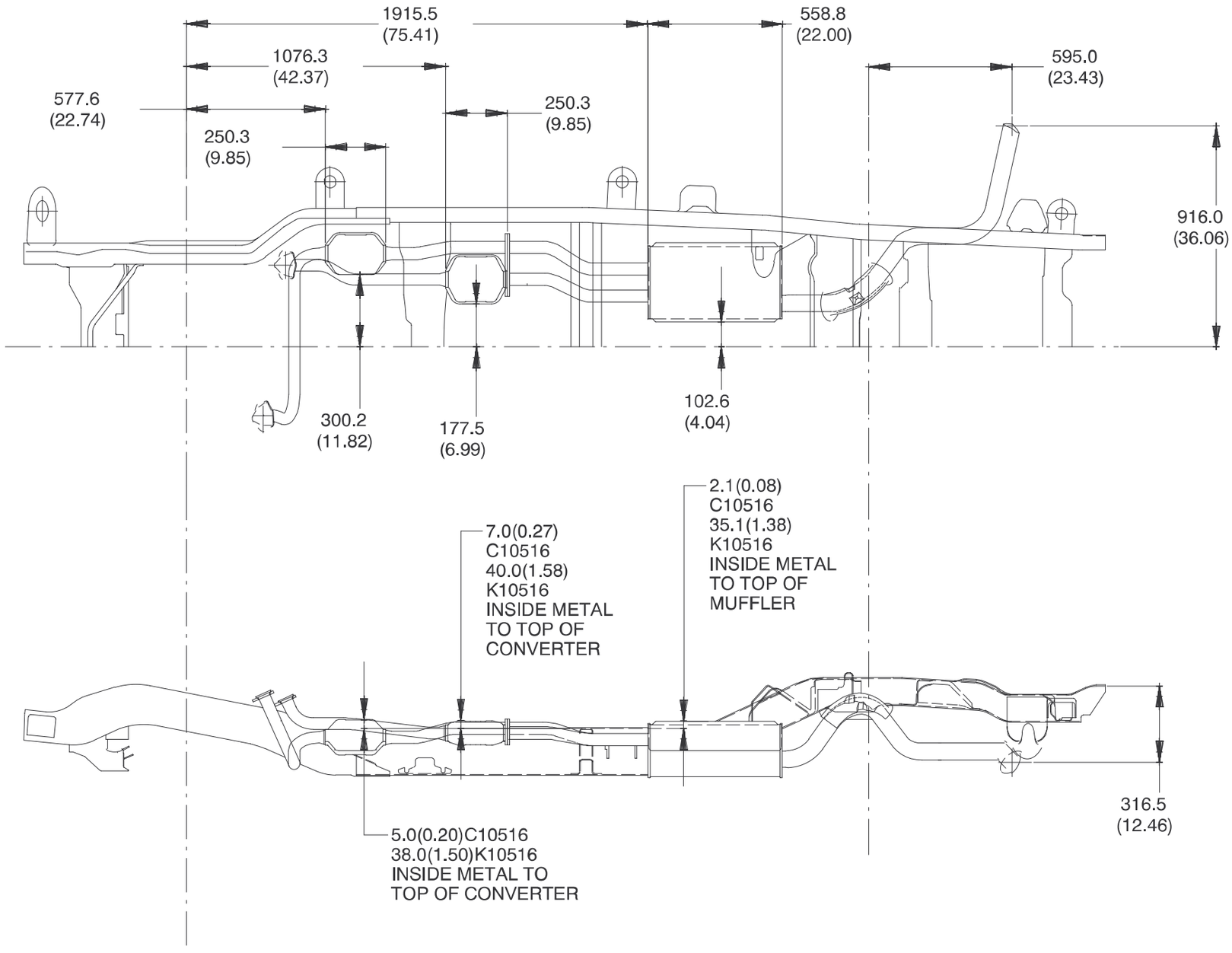


C318 & L29 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE
OF METAL

C/K 10516 w/5.7L Gas Engine, Option L31

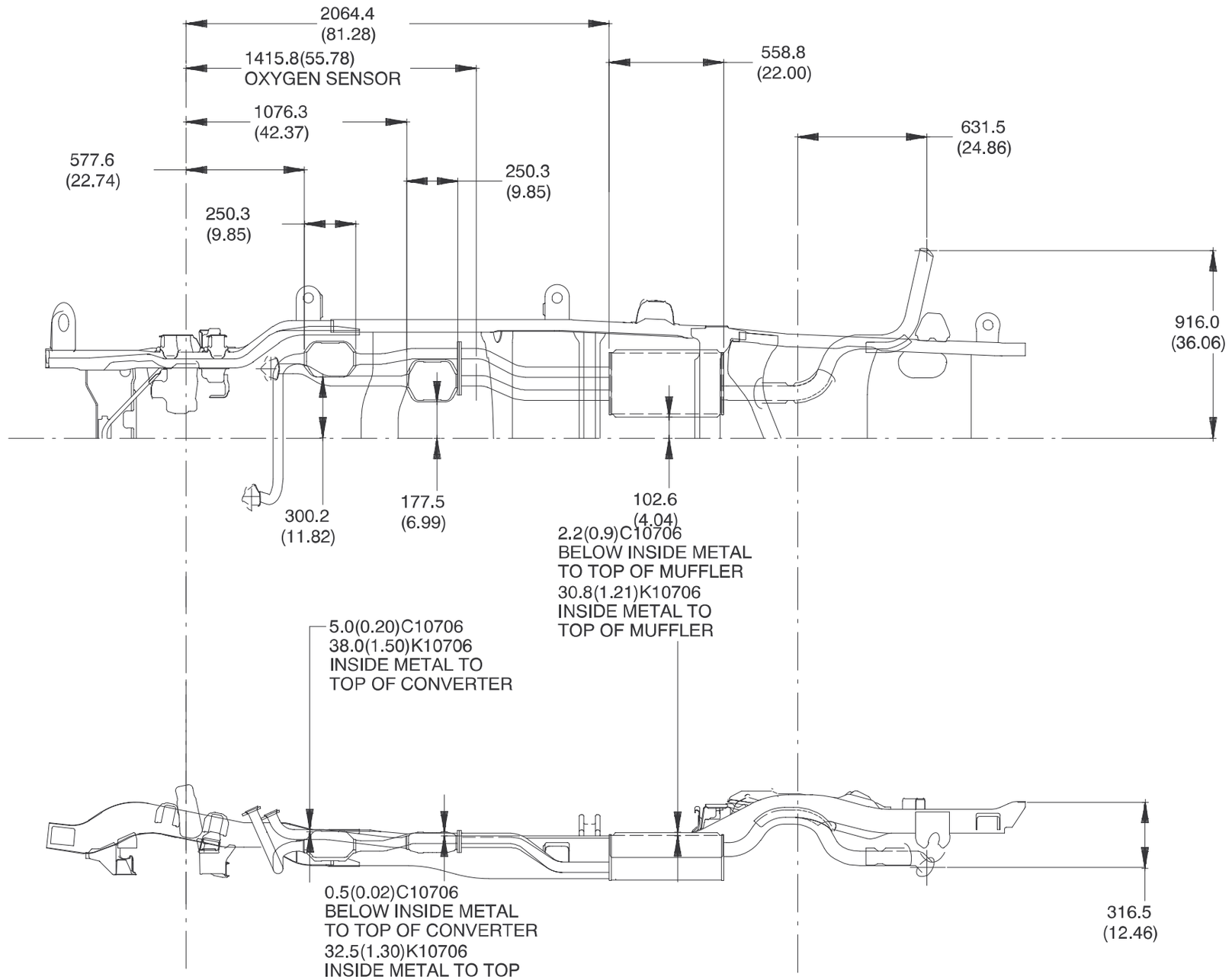


K10516 & L31 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO
INSIDE OF METAL

C/K 10706 w/5.7L Gas Engine, Option L31



C10706 & L31 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO
INSIDE OF METAL

Ordering Information

Electrical diagrams are available from Chevrolet and GMC through service publications. They have contracted the following companies to handle the ordering and shipping of the manuals.

Helm Inc.
P.O. Box 07130
Detroit, Michigan 48207

1 (313) 865-5000 for information and inquiries
1 (800) 782-4356 for credit card orders

Routine orders will be shipped within 10 days of receipt. Rush orders will be accommodated for an additional charge.

Order forms are available upon request and orders can be paid by check or money order, made payable to the mentioned companies. Credit Card orders can be made by phone on the listed toll free phone numbers.

Electrical System Interfacing Guidelines

General Discussion

General Motors recognizes that the completion of manufacture of some cab/chassis vehicles, by Body Builders for specific vocational needs, will require interfacing with portions of the OEM chassis electrical system. The manner in which these interfacing modifications are made can have an adverse affect on chassis electrical operations, in addition to causing problems with the Body Builder electrical system. In some cases, a "no-start" condition can occur. Additionally, an improper interface can cause the engine control computer to set and store fault codes and illuminate service telltale lights. For these reasons, extra care must be taken to ensure that these types of modifications are performed using reliable processes and components.

The following pages describe some of the known electrical system modifications which are being done by ambulance manufacturers, and provides a general definition of the recommended interfacing between the OEM chassis and Body Builder hardware to minimize the impact to the OEM chassis electrical system.

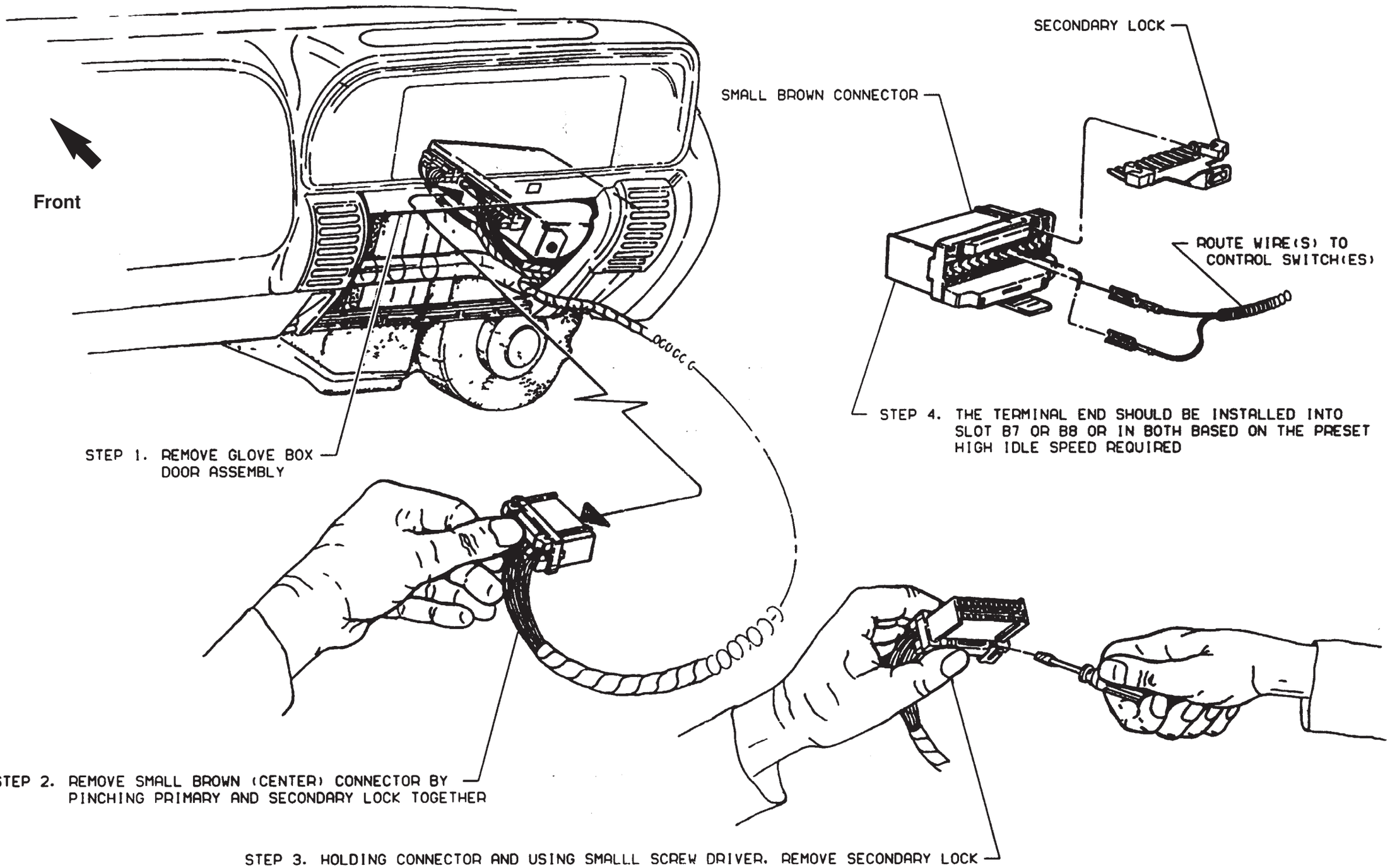
This is not a "How To" manual. It assumes the reader has technical expertise in the area. It is ultimately the responsibility of the Body Builder to design the interface to the OEM electrical system such that the operation of the completed vehicle is not compromised. If there are questions regarding these or other vehicle interface recommendations, please contact General Motors.

High Idle Control – (Diesel Vehicles Only)

When it is desirable to increase the engine idle RPM, when the vehicle is in Park or Neutral, to facilitate the operation of a PTO or other electrical accessories, there are pins on the diesel powertrain control module (PCM) which can be accessed to do so.

Connecting to and subsequently grounding either or both of the pins at the PCM described in the following connecting guidelines and shown in the following illustration will cause the engine idle RPM to be raised to the values indicated below, whenever the shift selector is placed in "Park" or "Neutral". Wire(s) from the PCM must be connected to ground through a driver controlled switch(s) to be able to "enable" or "disable" this high idle feature. Note: These are extremely low current circuits. It is therefore very important that low energy switches be utilized for grounding these circuits. The use of low energy switches will help to prevent future system failures that are caused by a film build up on the switch contacts.

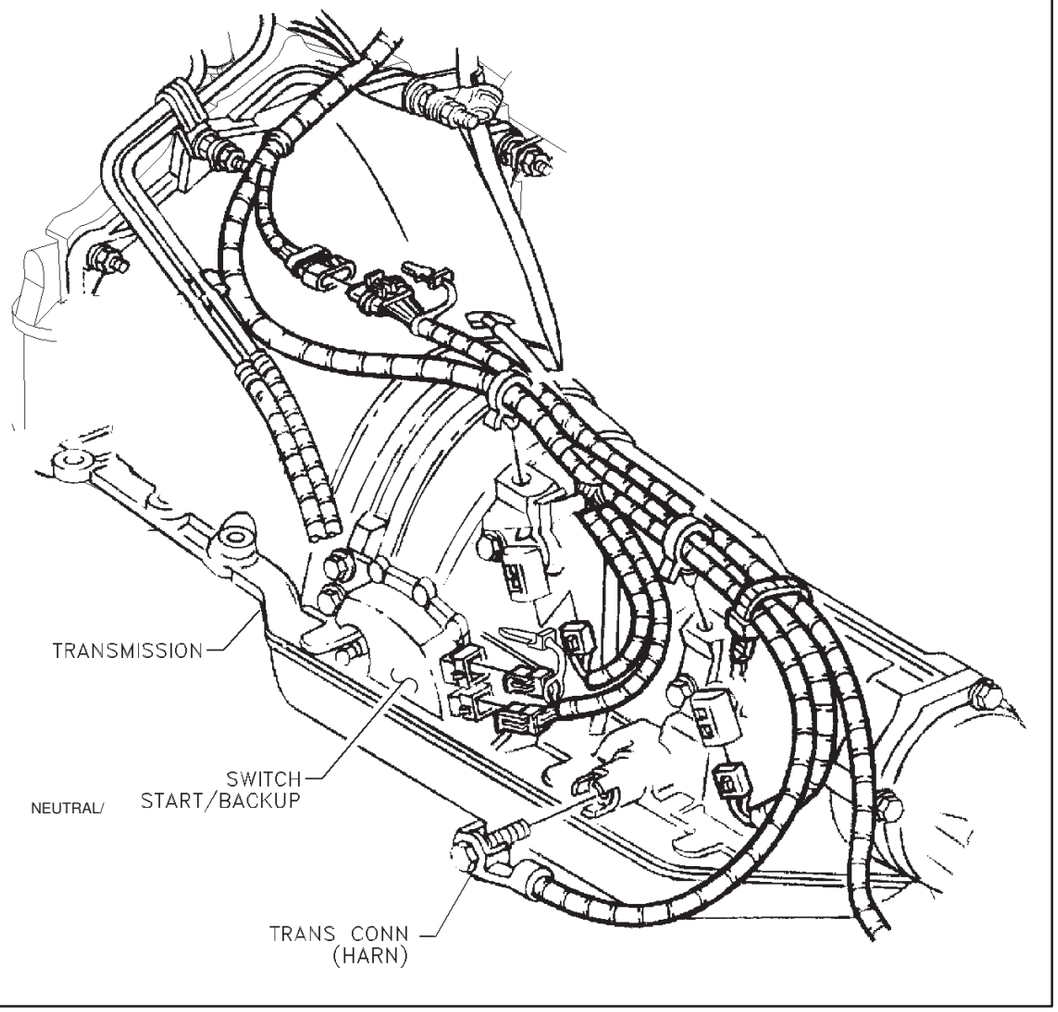
- Plugging a terminated wire into cavity B-7 of the 24 pin brown Micro-Pack connector at the PCM and grounding the other end of this wire lead through a Body Builder installed control switch will enable a high idle mode of 1360 RPM. It is recommended that an 18 gauge (0.8 metric) dark green wire be utilized for this application.
- Plugging a terminated wire into cavity B-8 of the 24 pin brown Micro-Pack connector at the PCM and grounding the other end of this wire lead through a Body Builder installed control switch will enable a high idle mode of 1070 RPM. It is recommended that an 18 gauge (0.8 metric) light green wire be utilized for this application.
- If both sets of wires and Body Builder switches are added to the vehicle, the grounding of both of these circuits at the same time, through their respective switches, will result in a high idle mode of 1600 RPM.


Front
STEP 1. REMOVE GLOVE BOX DOOR ASSEMBLY
SECONDARY LOCK
SMALL BROWN CONNECTOR
ROUTE WIRE(S) TO CONTROL SWITCH(ES)
STEP 4. THE TERMINAL END SHOULD BE INSTALLED INTO SLOT B7 OR B8 OR IN BOTH BASED ON THE PRESET HIGH IDLE SPEED REQUIRED
STEP 2. REMOVE SMALL BROWN (CENTER) CONNECTOR BY PINCHING PRIMARY AND SECONDARY LOCK TOGETHER
STEP 3. HOLDING CONNECTOR AND USING SMALLL SCREW DRIVER. REMOVE SECONDARY LOCK

Neutral Safety Switch Connection

If the body builders finds it necessary to electrically interface to the park/neutral circuit of the OEM neutral safety switch, it should be accomplished as follows:

- Locate the neutral safety switch on the automatic transmission.



- Splice a wire onto the 18 gauge (0.8 metric) yellow wire that exits from cavity "A" of the 7 way connector at the switch. Caution must be exercised to assure that only the yellow wire from cavity "A" is spliced into, as there are two other yellow wires exiting from this same switch. The splice should be made in an area that is protected from the environment and should also be sealed to be weather resistant. Note: This circuit is pulled to ground whenever the automatic transmission lever is in "Park" or "Neutral".
- The maximum body builder electrical load that can be added to this circuit is one (1) ampere. The body builder should incorporate a relay into the system, if the added load will exceed the one ampere maximum limitation. The OEM circuit can then act as a ground signal for the Body Builder relay coil whenever the transmission selector is in "Park" or "Neutral". The "High" side of the relay coil should be powered by an ignition switch controlled power source so that the relay will not be energized when the ignition key is in the "Off" position.

Procedure for installation of the Electronic Interface of Power Take-Offs (PTO) on 1998 Model Year Gasoline Engines with On-Board Diagnostics II

This procedure is intended as a guide to aid in safely installing an Electronic interface to the 1998 C/K Full Size truck from General Motors in 1998 Model Year with ON–BOARD DIAGNOSTICS II.

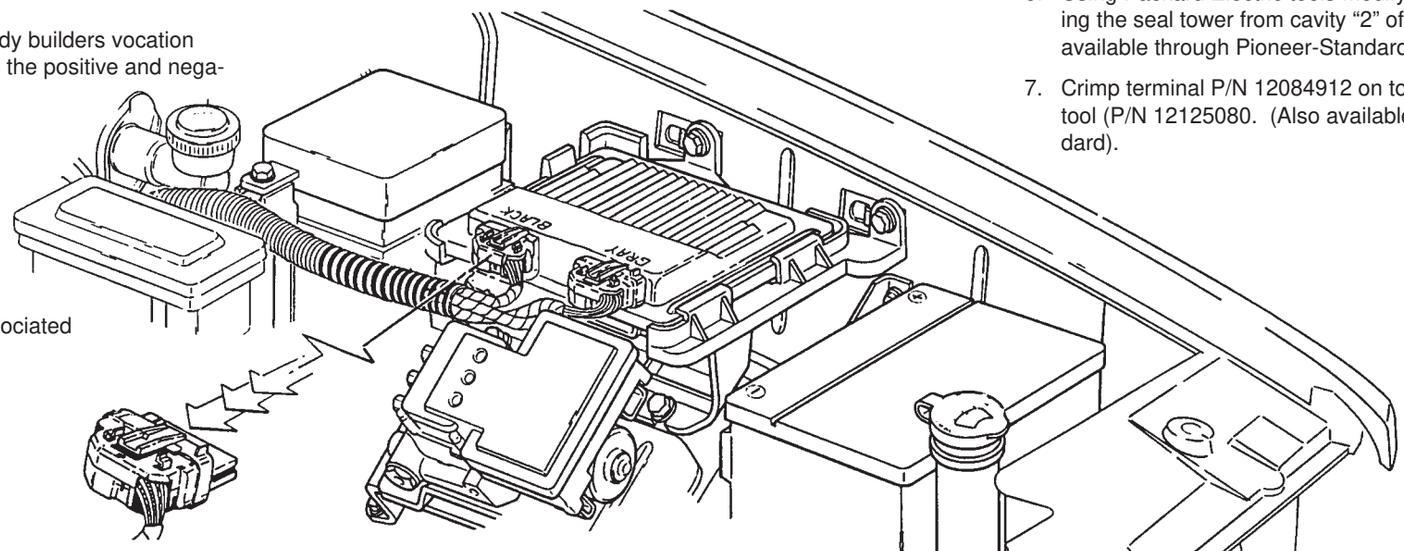
This procedure is predicated on a 1998 Vehicle Computer Module (VCM) in a Full Size Truck and the OEM PTO manufacturers instructions for installation. It should be recognized that generalized procedures cannot anticipate all situation.

The following steps are to be followed in making the modifications:

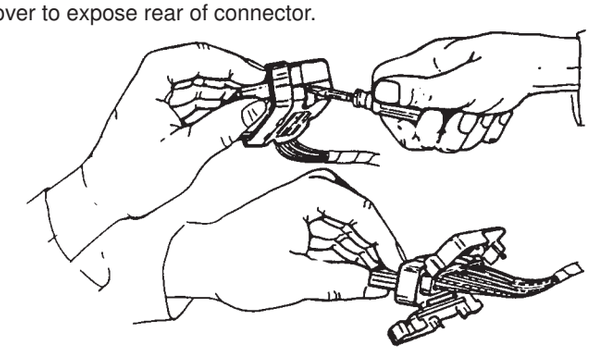
1. Perform a safety inspection of the existing body builders vocation application. Open the hood and remove both the positive and negative cables from the batteries.

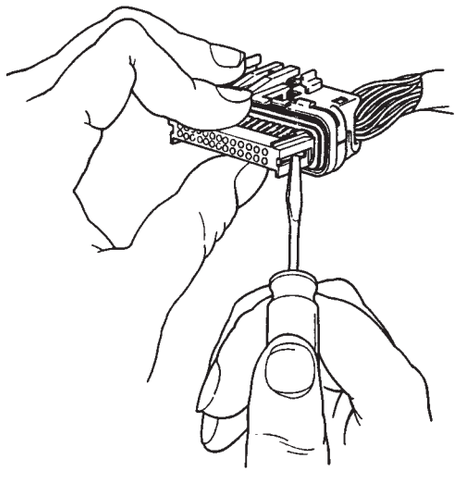
2. Shut off all power from the vehicle.

3. Install the Power Take-Off device and the associated hardware, i.e. a Hydraulic Pump or Kits.



4. Remove the 24 pin (black) connector from the VCM and open the wire dress cover to expose rear of connector.

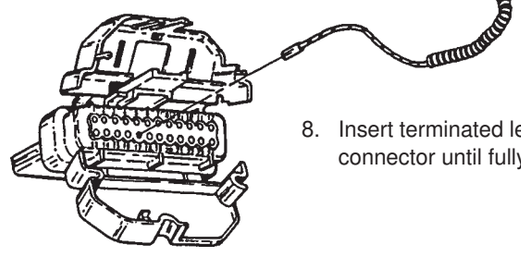




5. Remove Terminal Position Assurance (TPA) clip from front of connector.

6. Using Packard Electric tools modify terminal seal by removing the seal tower from cavity “2” of connector. (Note: Tools available through Pioneer-Standard (1-800-PACKARD).

7. Crimp terminal P/N 12084912 on to an 18 gauge wire using tool (P/N 12125080. (Also available through Pioneer-Standard).



8. Insert terminated lead into cavity “2” of connector until fully seated.

9. Reinstall TPA, close wire dress cover and plug connector into VCM.

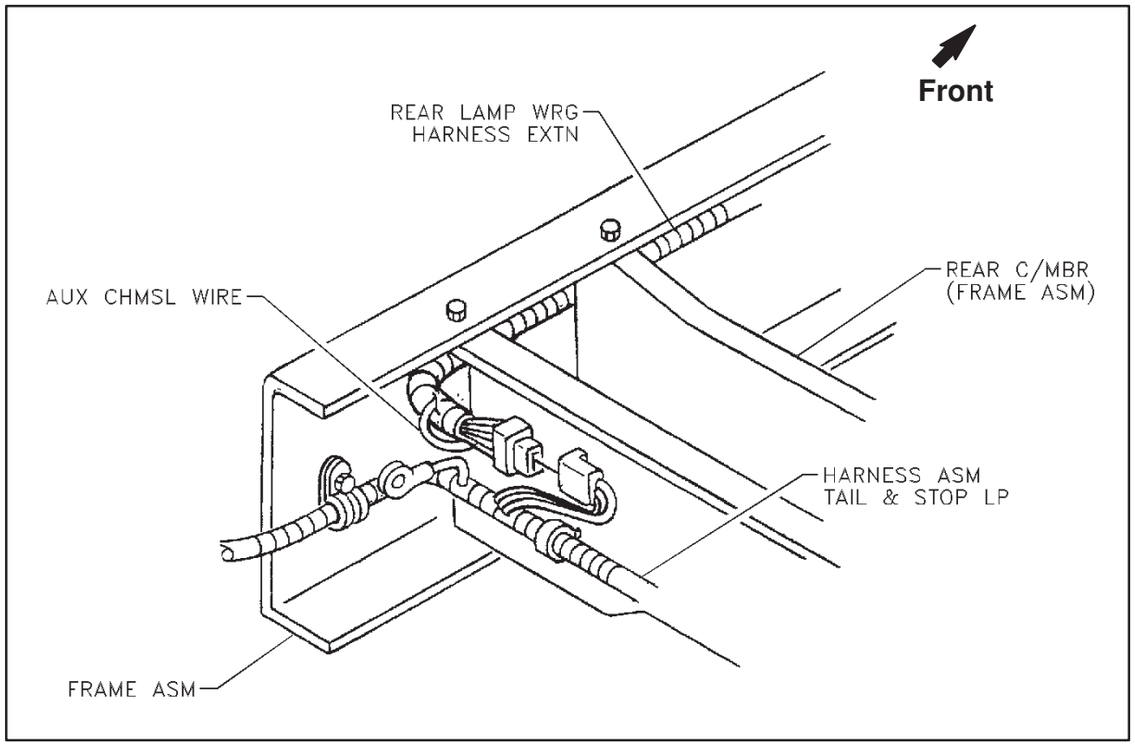
10. Protect wire and route/clip to suitable location at PTO control switch. This end of the wire should be switched to ground whenever the PTO system is engaged to bypass OBD II diagnostic operation when PTO is active.

Separated Function Stop/Turn Lamps

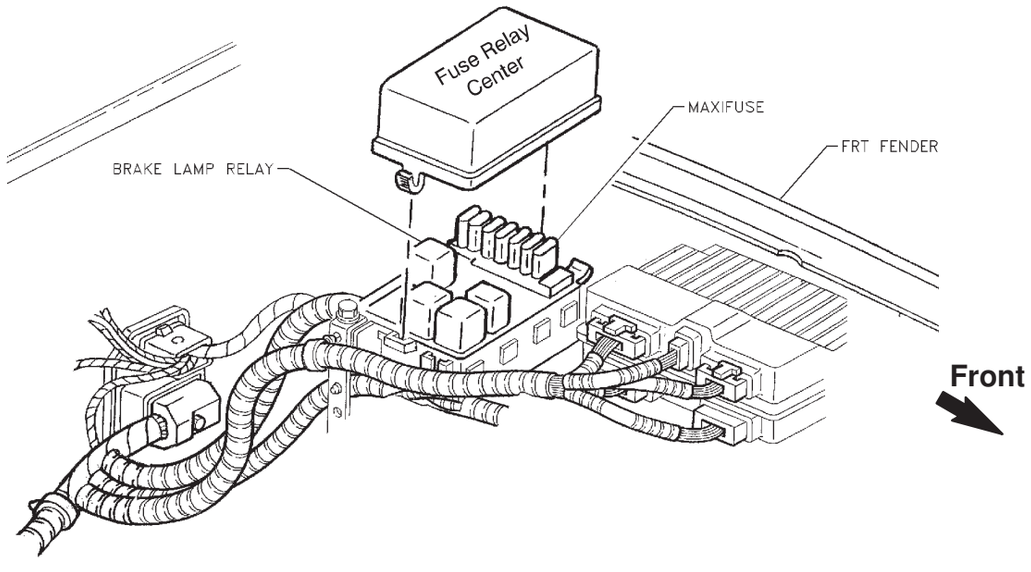
C/K cab/chassis vehicles are shipped from the factory with combined function stop/turn lamps. If separated function lamps are desired, the brake lamp circuit must be deactivated and the stop lamps, which are added at the rear of the vehicle by the Body Builder, connected to the center high mounted stop lamp (CHMSL) wire as described below. (Note: If this procedure is implemented, there will be no capability to directly connect to a trailer with combined function stop/turn lamps.)

Procedure:

1. At the rear of the chassis, there is a white wire taped back to the chassis harness just forward of the tail and stop lamp harness connector that is located near the intersection of the left-hand frame rail and rear cross member. This wire is provided to allow for the addition of a “CHMSL” (center high mounted stop lamp) with combined function lamps. This wire can also be used as a feed for dedicated stop lamps if they are added to the vehicle. This circuit can still be used to feed a CHMSL if so desired.



2. In the underhood electrical center, remove the “Brake Lamp Relay” from its socket, and remove the 30 amp maxifuse marked “Stop” from the long row of maxifuses. This will effectively remove the stop lamp input from the steering column, so that the rear turn signal lamps will be “turn only” instead of “stop/turn”.

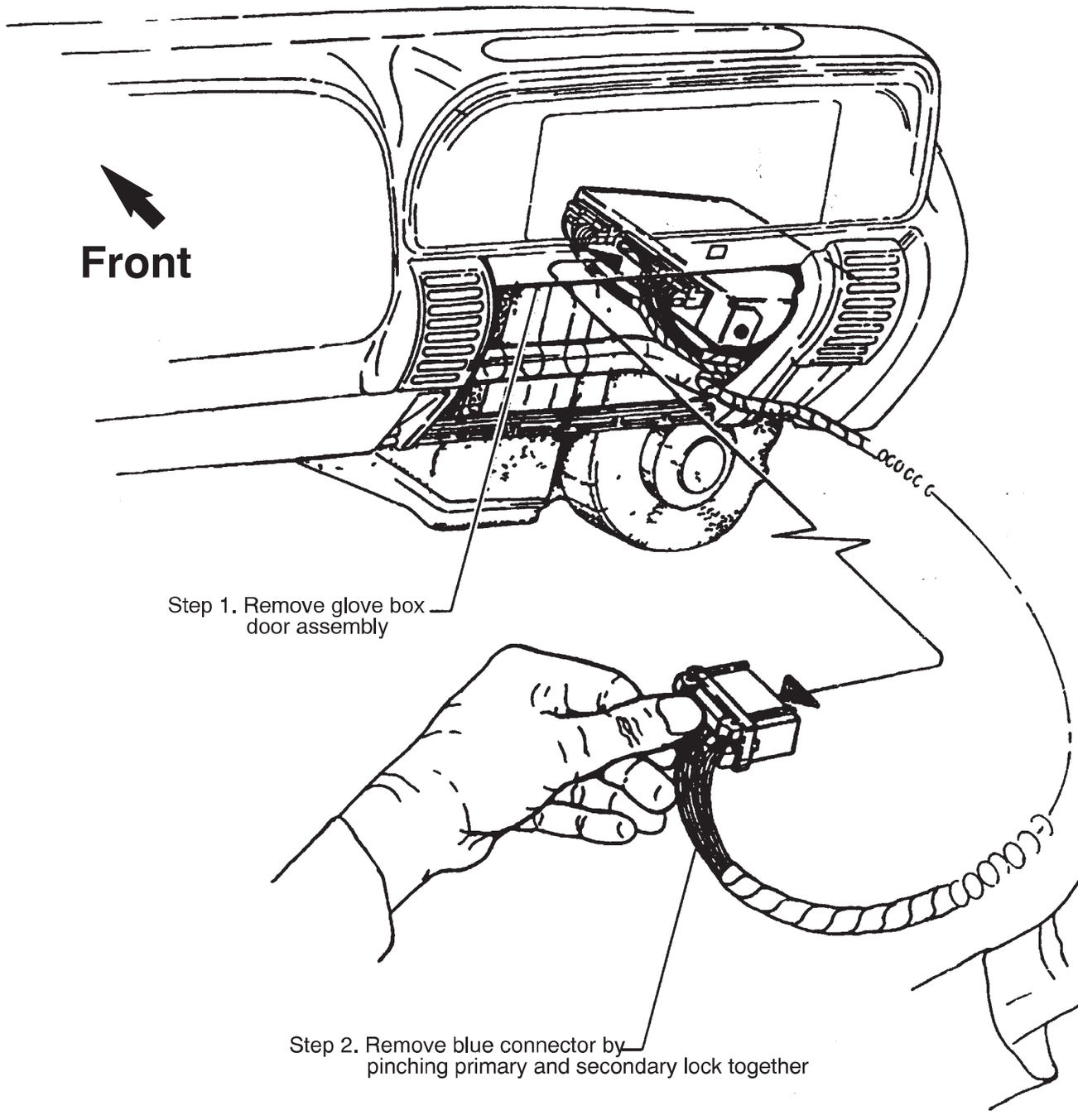


3. Verify proper operation of turn and stop lamps, and CHMSL if so equipped.

Continuous Powered Memory Circuits (Diesel)

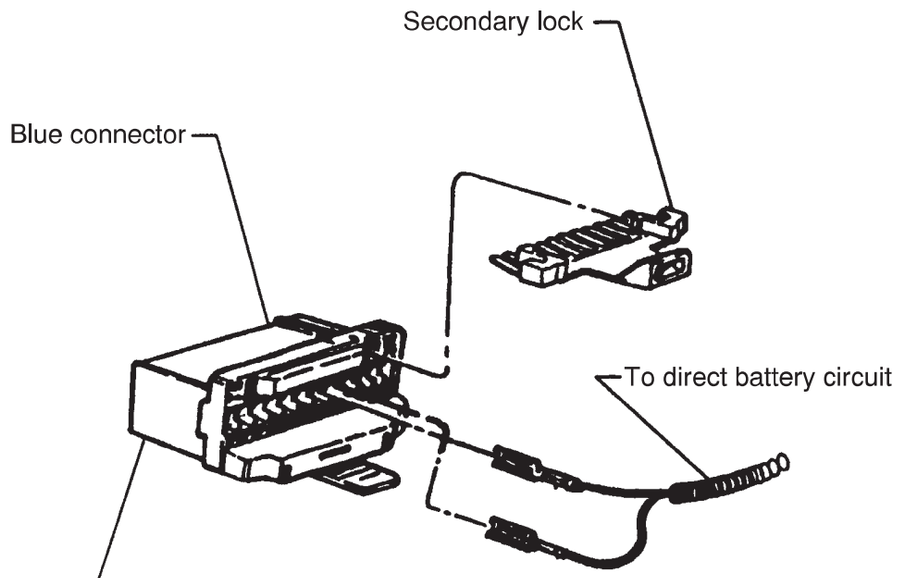
If a “Master Battery Disconnect Switch” is required for a specific vehicle application, it will be necessary to add a wiring circuit to the vehicle to connect direct (fused) battery power to the powertrain control module (PCM) to maintain the continuous powered memory circuits.

To maintain PCM memory, the 18 gauge (0.8 metric) orange wires that are terminated in cavities C-13 and D-13, of the blue 32 pin Micro-Pack connector at the PCM, must be removed from the connector and their ends insulated and taped back on the harness. Body Builder added direct battery feed circuit wires, that are protected by a 20 amp fuse, and have been properly terminated should then be inserted into both of these cavities.

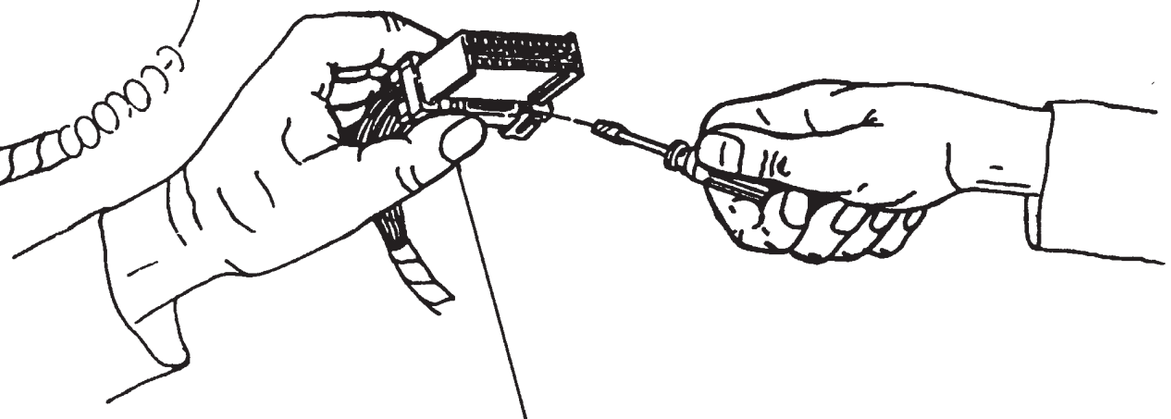


Step 1. Remove glove box door assembly

Step 2. Remove blue connector by pinching primary and secondary lock together

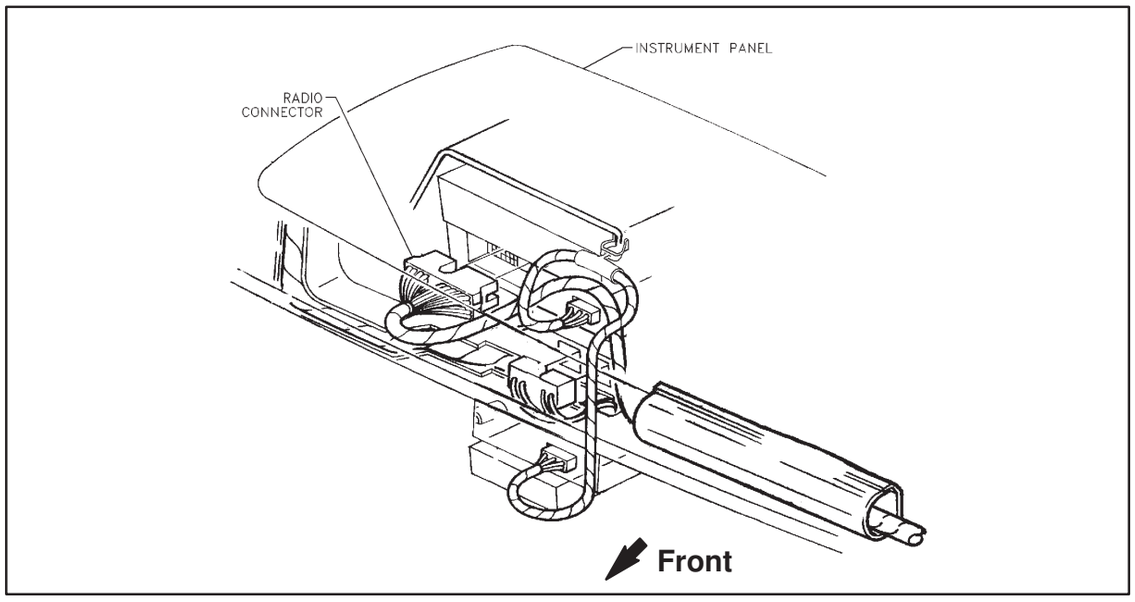


Step 4. The terminal ends should be installed into slots C13 and D13 to enable PCM memory

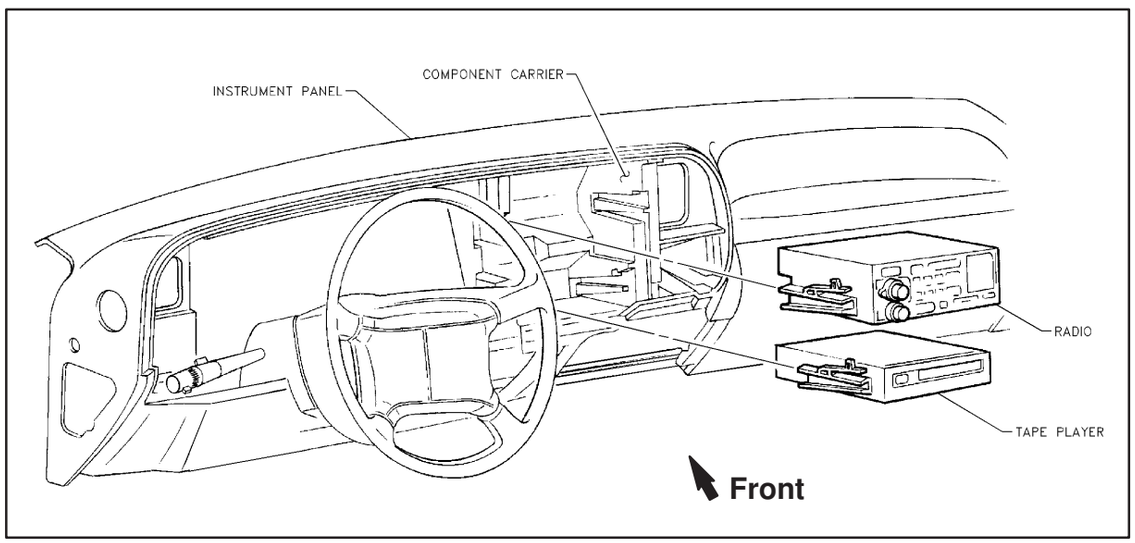


Step 3. Holding connector and using small screw driver. Remove secondary lock.

Additionally, the vehicle radio/clock must be powered continuously to maintain the correct time and radio pre-set stations. To maintain radio/clock memory, the 20 gauge (0.5 metric) orange wire that is terminated in cavity C-10 of the 20 pin (2-10 pin assembly) connector at the back of the radio, must be removed from the connector and its end insulated and taped back on the harness. A Body builder added direct battery feed wire, that is protected by a 10 amp fuse, and properly terminated should be inserted into this cavity.



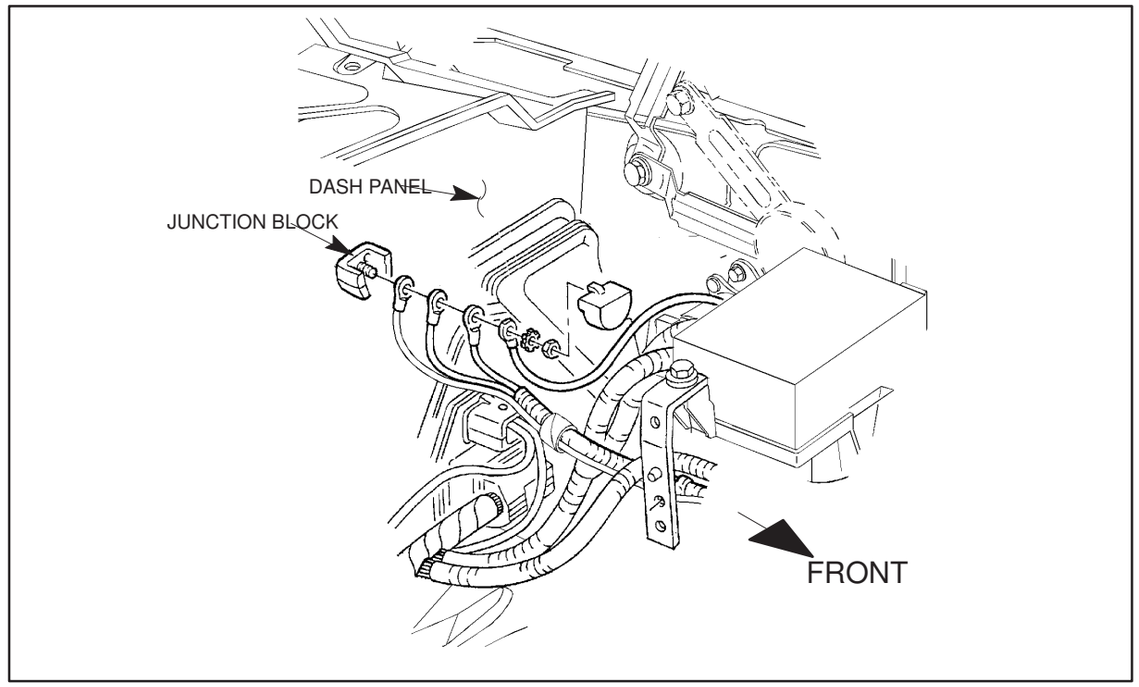
The radio may have to be removed from the instrument panel to gain access to the 20 pin connector.



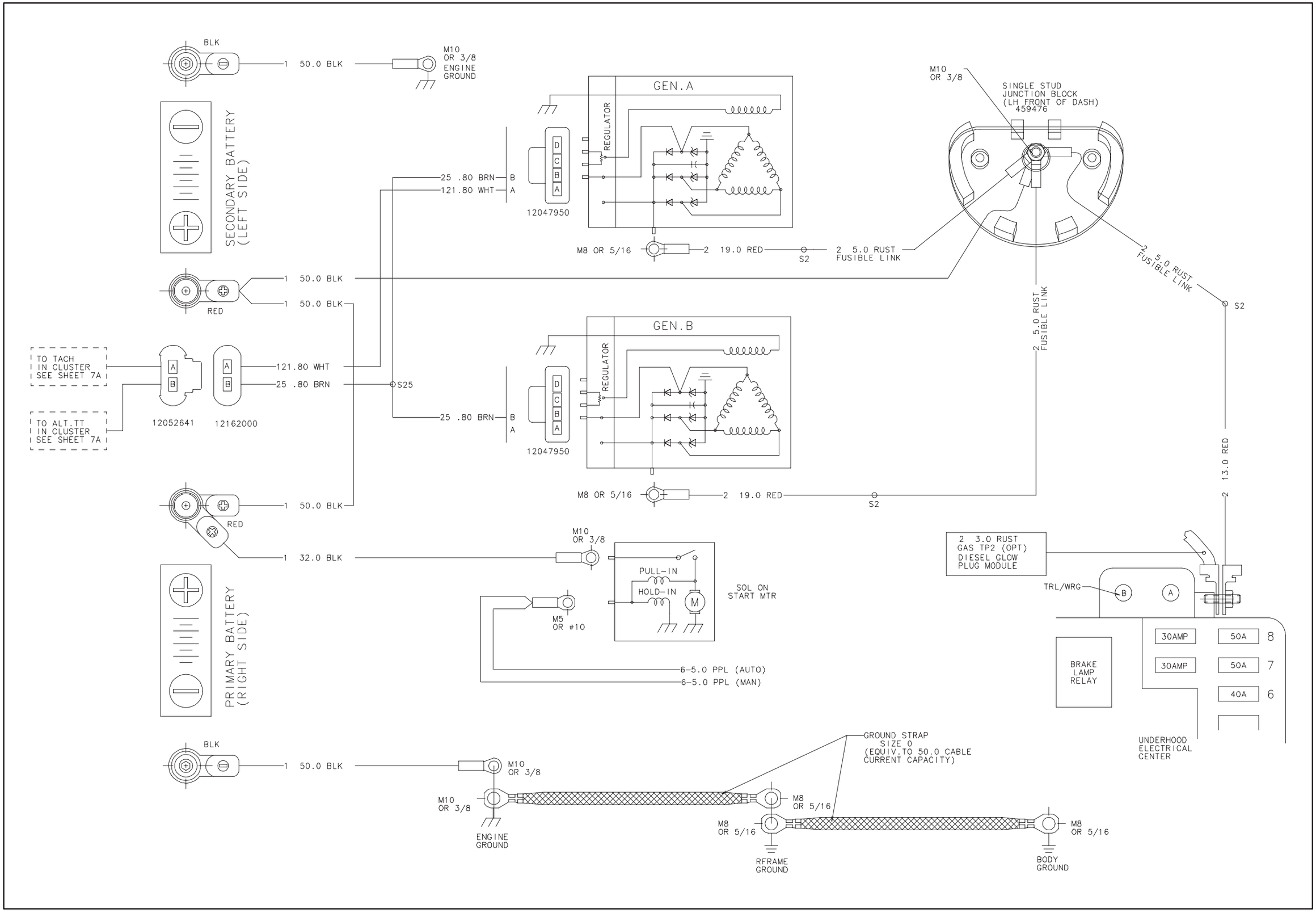
It should be noted that it is the responsibility of the Body Builder to ensure that power feed wires to these devices are properly fused and routed to prevent damage to the OEM electrical system during subsequent vehicle use.

Auxiliary Electrical Loads

When option “YF2” is specified for ambulance conversion, the cab/chassis vehicle will be equipped with a dual generator system. Additionally, an electrical junction block is provided in the engine compartment, mounted to the dash panel on the driver’s side. This junction block functions as an interconnect between the vehicle batteries, generators, and for the purpose of attaching body builder electrical loads. The intent of this block is to provide a convenient location for the body builder to incorporate the electrical shunt for a vehicle ammeter (if required), and also to provide a point where a high current lead can be attached for the ambulance accessories. Please note that the wiring to this block comes directly from the batteries, and that any loads attached at that point would have to have their own circuit protection devices. Refer to the electrical diagram for this system.

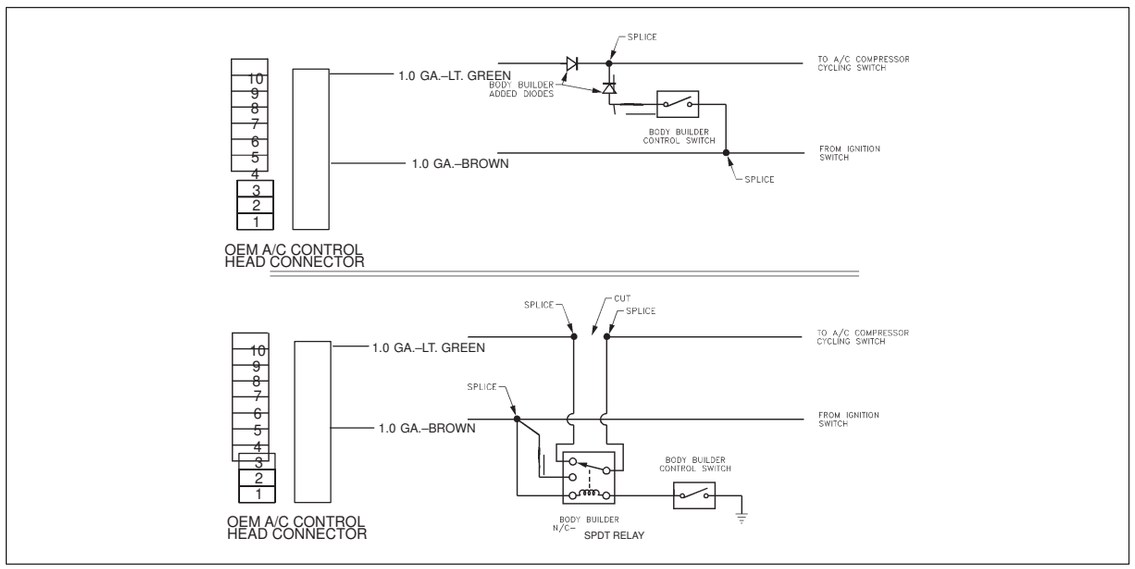


Also, for cab/chassis with the “YF2” option, heavy gauge ground straps have been provided between the engine, chassis and body sheet metal near the right rear of the engine for the purpose of providing a robust ground return path from the body or chassis to the battery. The body builder must ensure that the ground returns from their loads provide an adequate ground path into these straps such that voltage drops are minimized.

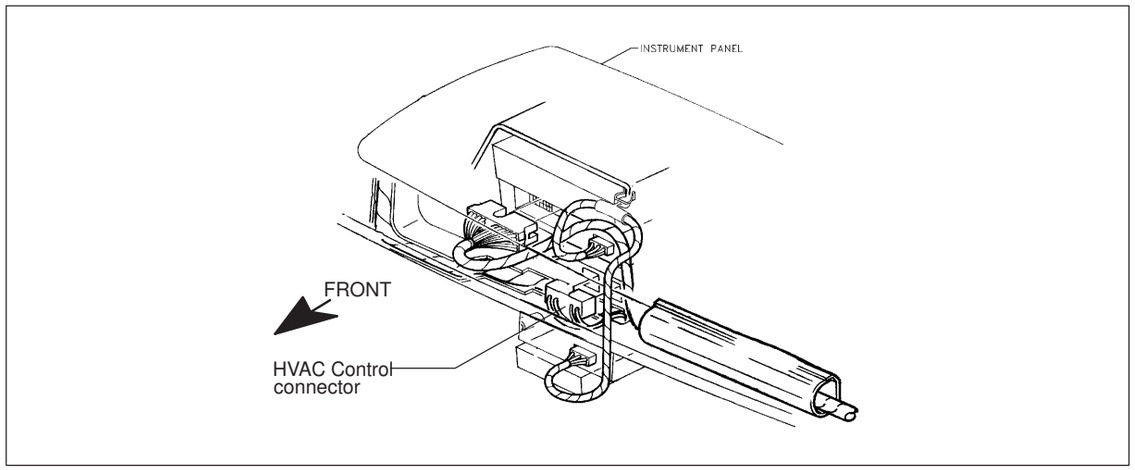

BLK
1 50.0 BLK
M10 OR 3/8 ENGINE GROUND
SECONDARY BATTERY (LEFT SIDE)
GEN.A
REGULATOR
D C B A
25 .80 BRN
121.80 WHT
12047950
M8 OR 5/16
2 19.0 RED
S2
2 5.0 RUST FUSIBLE LINK
M10 OR 3/8
SINGLE STUD JUNCTION BLOCK (LH FRONT OF DASH) 459476
2 5.0 RUST FUSIBLE LINK
S2
RED
1 50.0 BLK
1 50.0 BLK
TO TACH IN CLUSTER SEE SHEET 7A
TO ALT.TT IN CLUSTER SEE SHEET 7A
A B
12052641
12162000
121.80 WHT
25 .80 BRN
S25
GEN.B
REGULATOR
D C B A
25 .80 BRN
12047950
M8 OR 5/16
2 19.0 RED
S2
2 13.0 RED
RED
1 50.0 BLK
1 32.0 BLK
M10 OR 3/8
PULL-IN
HOLD-IN
M
SOL ON START MTR
M5 OR #10
6-5.0 PPL (AUTO)
6-5.0 PPL (MAN)
PRIMARY BATTERY (RIGHT SIDE)
2 3.0 RUST GAS TP2 (OPT) DIESEL GLOW PLUG MODULE
TRL/WRG
B A
30AMP 50A 8
30AMP 50A 7
40A 6
BRAKE LAMP RELAY
UNDERHOOD ELECTRICAL CENTER
BLK
1 50.0 BLK
M10 OR 3/8
M10 OR 3/8
ENGINE GROUND
GROUND STRAP SIZE 0 (EQUIV.TO 50.0 CABLE CURRENT CAPACITY)
M8 OR 5/16
M8 OR 5/16
RFRAME GROUND
M8 OR 5/16
BODY GROUND

HVAC Controls

If it is desirable to activate the OEM A/C system (compressor) from a secondary remote switch, care must be taken to insure that the OEM pressure switches are still active in the system, to maintain proper compressor cycling action and over-pressure protection.



In order to connect a remote HVAC switch (controller) into the base OEM system, it will be necessary to tie into the circuit that runs between the OEM control head and the compressor cycling switch. (This is the light green wire that exits cavity 10 of the OEM controller connector.) A 12 volt DC ignition signal must be applied to this circuit when requesting the HVAC compressor to turn on. The Body Builder may obtain this signal by splicing into the brown wire that exits cavity 5 of the OEM controller connector. It will be necessary to incorporate either diodes or an isolation relay into this circuit to prevent damage to the OEM controller due to unwanted electrical feedback. Note: The compressor cycling switch circuit, that must be spliced into by the Body builder, is an extremely low current circuit and will require the use of a low energy switch to prevent future system malfunctions that can be caused by a film build up on the switch contacts.



Ignition Power Feed Interfacing

A vehicle ignition power feed circuit may be obtained by the Body Builder by connecting to an ignition circuit terminal at the OEM convenience center. The convenience center is located in the passenger compartment, on the left side of the dash panel, outboard of the steering column. A wire of an appropriate gauge size should be properly terminated and inserted into cavity “C” of a Delphi Packard Electric 280 Metri-Pack connector (Part Number 12110777-dark green in color). The connector should then be inserted into the 3-way connector cavity in the convenience center marked “spare”. This circuit may be used for circuit loads of one (1) ampere or less. If power greater than the one ampere maximum limitation is required, this circuit can still be used but only as a signal source to energize a Body Builders supplied relay.